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THE  
CALIFORNIA CULTURIST:  
A JOURNAL

OF  
AGRICULTURE, HORTICULTURE, MECHANISM AND MINING.

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VOLUME II.  
June, 1859, to May, 1860.

W. WADSWORTH, . . . . ., Editor.

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# **T H E CALIFORNIA CULTURIST.**

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**J U L Y , 1 8 5 9 .**

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## **THE FORAGE OF THE PACIFIC.**

**N**O one can deny that, however humbling it may be to our State's pride in regard to agricultural resources, the question as to how her future herds of cattle and horses are to be supported, is becoming one of grave import. The past winter and spring will be long remembered, by many herdsmen, as the year of abundant rains, and yet an extreme scarcity of early green forage for their stock. We can point to a single cause for this, in the coldness of the season ; but are we not liable to be visited, from year to year, with the same climatic influences that have, during the past winter in very many localities, nearly decimated our stock ? It is well known that very many of our valleys' herdsmen are looking out and securing every mountain meadow, along the coast range and among the ridges of the Sierra Nevada, as summer and autumn feeding grounds for their stocks of cattle, and that those meadows are everywhere becoming of great intrinsic value.

It is equally well known, too, that those valley stock-growers have been in the practice, annually in early spring, of driving their stock from the low grounds to the more hilly and early pastures of the foot-hills. That, this year, the occupants of the hilly country have remonstrated against this, in tones loud and deep, as depriving them, to a great extent, or greatly lessening the amount of forage absolutely required for their own rapidly increasing herds.

The fact is, California, with her present system of stock husbandry, is rapidly approaching a crisis which but few even anticipated, but which must be met and provided for. It cannot be said we have too much stock for our population, so long as beef sells at twenty-five cents a pound. Equally strange to many would appear the assertion that what stock we have we are unable to keep from dying by starvation. One or the other condition, however, must be the true one ; either we have too much



























and although subsequent payments were made properly, still the failure in the first instance worked a forfeiture of the land.

Then again, second and subsequent interest was required to be paid yearly, in advance. It was held by the Attorney General, that interest dated from the time the Certificate of Purchase should have been issued, that is from the date of payment of the first interest money into the State Treasury. In some instances it is impossible for the State Treasurer to certify to this office, the payments by certain individuals for certain tracts. In these cases the interest must date from the payment into the County Treasury.

Last winter I drew up a bill for the relief of Purchasers who had neglected to comply strictly with the Law; it was passed April 8th, 1859. It is entitled "Act for the relief of Purchasers of Lands from the State of California."

One of the provisions of which reads as follows: "Provided further, That the defaulting party shall, within six months from the passage of this Act, present his equitable claim to the Register and prove that all arrearages have been paid up, as required by the Act under which the purchase was made, and *apply for his Certificate of Purchase in the manner which may be prescribed by the Register.*"

Purchasers of Swamp Lands, under the act of 1855, were entitled to Certificates of Purchase, as soon as the first payment of interest was made. Many persons neglected to apply for them, and consequently they were not issued. In many cases, before my term of office, surveys were not approved by the Surveyor General, for various reasons, but were sent back to the County Surveyors for correction, and have never been returned to this office. In one or two instances of this kind, parties have regularly paid their interest money and applied for Certificates of purchase, but as no record of the survey could be found in this office, of course they could not be issued until the matter was explained and the survey rectified, therefore all purchasers, who have not as yet received their Certificates, should apply immediately for them.

It will be borne in mind that in cases where any informality in regard to payment exists, the purchaser must apply for his Certificate before October, 1859, for after that time it cannot be issued to him. For the convenience of those interested, application can be made through the County Treasurers, to whom should be paid the fee of three dollars allowed for issuing the Certificate of Purchase.

If the interest for the several years has been paid, then the Certificate will be issued immediately. If, however, there is a payment still due, the amount should be paid to the County Treasurer, a copy of whose receipt, forwarded to this office by the Auditor, would be proof of the payment, and upon the receipt of which the Certificate would be issued.

It will be remembered that if the six months allowed by the Act for perfecting title should be suffered to pass without applying for the Certificate, then the land is free to entry and purchase by any one.

By law, Certificates of Purchase are made *prima facie* evidence of title. Purchasers of swamp and other State lands have no title until they receive the certificate.

It may be well to state that, in many instances, forfeited lands have been entered









































ing two hundred yards-square, together with buildings suitable for primary schools and other public establishments.

On the 3d of November, of the same year, the Government passed an Act bringing all the Missions under the colonization laws, thus taking all civil power from the priests.

On the 16th of April, 1834, another "secularization" Act was passed, still more stringent, to take effect four months thereafter.

Up to the early part of 1840, all the acts of the Colonial or Territorial Government of California were in obedience to and harmonizing with the decrees of the Supreme Government on the same subject.

The Mission herds had been distributed through the country, as loans from the priests to the colonists which the secularization Acts had induced to settle in the country.

Late in the year 1842, General Manuel Micheltorena, under appointment from the Mexican Government, as Governor of California, arrived in the country; and placing a very liberal construction upon certain extra powers granted him, in March, of the following year, he issued his decree for the restoration of the Missions of San Diego, San Luis Rey, San Juan Capistrano, San Gabriel, San Fernando, San Buenaventura, Santa Barbara, Santa Cruz, La Purissima, San Antonio, Santa Clara and San Jose, to the priests, to be again ruled, governed and disposed of by them as they were before the secularization, and also that all property should be restored. This Act so incensed the settlers in the country that they made hostile resistance, and finally drove the Governor out of the country.

Pio Pico succeeded to the powers of Governor, and commenced a series of legislation which culminated in a sale at auction of immense tracts of Mission lands. These sales were by his successor declared to be extra judicial, and hence null and void; and on the 31st of October, 1846, the Territorial Legislature sanctioned and established said declaration. Hence, a series of conflicting titles to hundreds of thousands of acres of the best lands in the State, some idea of which may be gained from the following statement of the amount of land belonging to the different Missions: San Diego, three leagues; San Luis Rey, thirty-eight leagues; San Gabriel, three and a half leagues; San Fernando, fourteen leagues; San Buenaventura, twelve leagues; Santa Barbara, three leagues; Santa Agnes, two leagues; Purissima, three leagues; San Miguel, twelve leagues; Soledad, two leagues; San Jose, seven leagues; Dolores, three leagues; San Rafael, eleven leagues; making an aggregate of more than half a million acres, besides small amounts connected with eight other Missions.

It is the judgment of many well-informed and able jurists, that these will all be rejected. If this should be so, these lands must, sooner or later, become the homes of thousands of happy families, adding vastly to the real wealth and desirableness of our country."



































## METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending May 30th, 1859; Lat. 38°, 34', 41'', N.; Long. 121°, 27', 44'', W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which ain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By THOS. M. LOGAN, M. D.

7 21  
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24 24  
26  
27

## Thermometrograph.

	Deg.		Deg.
Highest Reading by day on the 14th .....	84.00	Mean of all Highest Readings by day .....	69.04
Lowest Reading by night on the 8th .....	45.00	Mean of all lowest readings by night .....	51.77
Range of Temperature during month .....	39.00	Mean daily range of Temperature during mo. ....	17.27

REMARKS.—The rigid and chilling weather which characterized the first third of the present year, has, at last, given way to the heat of a warmer season; and of late we have had a time, in our overflowed lands, of wading deep in melted snow; and now we are in an atmosphere of sultriness and haziness, of dryness and dustiness. It has been universally remarked all over the North American Continent, that the cold of the past season has been the most prolonged on record, and, in confirmation of this, the avalanche of water that has been precipitated from the mountains at this late date may be cited. On turning to our river chart we find that the spring floods, caused by the melted snow, invariably occur prior to the month of May, with the exception of last year: and even then the rise happened during the first week of May, and did not reach more than twelve feet, six inches above low water mark. This year the spring freshet did not attain its maximum until the 24th of May, when it marked nineteen feet above zero on the river gauge. Since this date the Sacramento river has been slowly subsiding, and now stands (1st June) at seven and eight inches above low water mark.

Whether or not the prolonged cold, damp weather will exercise a blighting influence upon the fruit crop, remains yet to be proved. As far as our information extends, the cereals have been damaged in only a few limited districts by the floods;—although we regret to hear that the smut has made its appearance in some localities. At the same time we are pleased to perceive that the berry crop, although a month behind the usual time, was never more abundant, and never more highly flavored. As it is probable the rainy season is now over, we annex the following summary, which will afford a comparative view of the amount of rain which has fallen:—1853-4, 20.068 inches; 1854-5, 18.630 inches; 1855-6, 12.770 inches; 1856-7, 10.442 inches; 1857-8, 15.003 inches; 1858-9, 16.021 inches.



















































































































**BEES.**—We have ten hives of bees in excellent condition, that we will sell if we can get one hundred dollars a hive for them. If not, we will keep them and average four new swarms from each hive, the next year. Every good swarm of bees, in a favorable locality, will make from thirty to forty-five pounds of surplus honey a season, and it has thus far sold at one dollar per pound in San Francisco. Who wants bees?

**INSURANCE.**—There is nothing like being insured against loss by fire, in a country so subject to this dire calamity as is California. McLean & Fowler, in San Francisco, offer to insure almost any description of property, and in any part of the country, against loss by fire. For particulars, and now, just before you lose your well stored garner, turn to their advertisement and read.

### CALIFORNIA HORTICULTURAL SOCIETY'S CIRCULAR FOR 1859.

THE FIRST AND SECOND ANNUAL FAIRS of the CALIFORNIA HORTICULTURAL SOCIETY, having more than equalled the highest expectations of their projectors, the officers and members of the Society are encouraged to still further efforts to advance the horticultural interests of the State, by presenting the incentive of a Third Annual Fair.

The Third Annual Fair of the Society will be held in the City of San Francisco, commencing on TUESDAY, the 6th of September, 1859, at six o'clock, P. M., and continue four days.

The object of the Society being to foster and encourage all departments of scientific and practical Horticulture, we invite the aid and co-operation of all who feel interested in the growth and perfection of tree, plant, fruit or flower, to help make the Fair alike creditable to the Society as well as to the industry, taste and skill of the horticulturists of California.

The acknowledged benefits that always accrue to communities, societies and individuals from public exhibitions of the products of their industry and skill, and the mutual good feeling engendered by these annual gatherings of our intelligent cultivators, should be a sufficient inducement, aside from the very liberal premiums heretofore awarded, to call out the active co-operation of a largely extended list of new members.

Any person to be a member of the Society, must pay a fee of five dollars annually, which entitles himself and family to free admission to all the exhibitions of the Society, and permits him to compete for premiums in any and all departments.

The committees of award, or judges, will be selected with special reference to their ability to judge correctly and award impartially.

All articles on exhibition for premiums, must be in place and properly arranged by three o'clock, P. M., of TUESDAY, the first day of the Fair.

No exhibiter's name will be attached to his articles until after the awards are made up by the judges, which shall be completed before six o'clock, P. M., on TUESDAY, the first day of the exhibition. The afternoon of Tuesday, until six o'clock, will be exclusively devoted to examinations by the judges, during which time all visitors and all exhibitors—except such as are invited by judges, for purposes of explanation—will be excluded.

The Society will provide every facility in its power for the safety and preservation of all articles on exhibition, and will be happy to receive contributions and display them, with the names of contributors, at any time during the Fair; but no exhibiter will be entitled to a premium unless his articles are on exhibition and in place before three o'clock, on TUESDAY, the first day of the Fair.

The Society will also be happy to receive and exhibit contributions from persons who may not be able to be present. Any such articles, forwarded by the California Steam Navigation Co., the Pacific Mail Steamship Co., or other transportation companies, labeled "For the Horticultural Fair," and directed to the "care of W. Wadsworth, Secretary, San Francisco," will receive due attention; and any instructions accompanying the same will be carefully regarded.

The citizens of neighboring States and Territories are cordially invited to exhibit, under the same rules and regulations as those of our own State.

The Convention of Fruit Growers will be held from nine, A. M., to twelve, M., during each day of the Fair.

The co-operation of kindred Societies is invited.

EDITORS throughout the State, will aid the horticulture of California by giving publicity to our intentions. We invite their attendance, and correspondence with our Secretary.

At the close of the Fair all articles of exhibition not otherwise ordered, will be sold for the benefit of the Society only.

Per order of Executive Committee.

W. WADSWORTH, *Secretary.*











# T H E **CALIFORNIA CULTURIST.**

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**SEPTEMBER, 1859.**

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## **OUR AGRICULTURAL PROGRESS.**

**I**T is not sufficient for the future of California to be able to say that we are annually adding to the breadth of acres devoted to the cereals, or that a large increase of the gross annual yield is apparent from the records of trade, showing an approach to that period when we shall become steady exporters of breadstuffs. We want to do more than this; we want, upon our new and as yet unexhausted soil, to practice a system of agriculture that shall not only enable the soil to yield its annual increase over the product of last year from an increase of acres, but we want those acres to remain as productive for our successors as we found them.

In no other way, or upon any other condition, can it be said we are practicing a perfect system of agriculture, as adapted to California, or a progressive agriculture. To enrich our pockets by a direct impoverishment of our acres, is a progress of extremely doubtful utility when applied to agricultural lands. We might, in a country in which the soil was valuable only for the gold it might contain, fill our purses even at the expense of a total loss of every portion and particle of soil, and feel that we were progressionists, rather than impoverishers of the country. But the agriculturist, the grain or stock-grower, who follows a system that is impoverishing his lands, lessening the quantity of grain or pasturage from year to year, though he may follow strictly in the path as marked out by the best and most scientific culturists of other lands, he yet lacks the element necessary to constitute him a true agricultural progressionist.

That the great body of our lands, devoted to the cereals, are annually becoming less and less productive, admits of no dispute. We are, then, upon a wrong track or system in some way; we are either plowing too deep or too shallow; sowing too much































































































































































two colors, white and yellow, Judge Daniels recommended the yellow as superior. Mr. Fox, of San Jose, stated his conviction that the white was undoubtedly the true fruit; the yellow he considered an old Mexican with a new name. Judge Daniels thought some authority necessary, as the sole point of objection seemed to be the color. Mr. Lewelling remarked that some trees he obtained from New York had turned out alike to the Crawford peach, similar to that collected at Marysville. The question of color was allowed to stand. Retained.

Crawford's Late.—Retained.

President.—Ripens in September, and was free from curl in Alameda. Retained.

Evard's Late Free.—Put on list for further trial.

Fox's Seedling.—Erased from the list.

Smock's Free.—No curl this year. Retained.

Heath Cling.—Judge Daniels stated that, in San Jose, it was subject to curl, and he thought it would not bear a crop in four or five years in the vicinity of the bay. It was a good peach, however. Put on the list for further trial.

Druid Hill.—At Oak Knoll it did well for first trial. Retained.

Grosse Mignonne.—True variety, large, white blossoms. Retained.

Late Admirable.—Judge Daniels stated that, although it did not bear fruit every year, it was a worthy peach. Retained.

Red Rare Ripe.—It being subject to curl in different localities, was transferred to list for further trial.

Morris White.—Objection was made by Mr. Fox, that the fruit was soft, and would not stand handling; but it was a great favorite with consumers. Retained.

*Further Trial.*—The following varieties, recommended for further trial last year, were then discussed:

Early Tillotson.—Mr. A. F. Beardsley, for Daniel Gibbs, Suscol, gave it an excellent character, and it was promoted to list for general culture.

Early Newington.—Retained.

Harkies' Seedling.—Retained.

Poole's Late Yellow.—Retained.

Lemon Cling.—Mr. Osborn stated that this variety was a great favorite in the upper end of Napa Valley. It was a profitable peach, came in late in September. Promoted to list for general culture.

Royale de Montrell.—Stands the climate of Santa Clara. Retained.

Litzen's Seedling.—Retained.

Monstrous Pavie.—A large free-stone peach. Retained.

Malta.—Promoted to list for general culture.

*For Trial.*—Mr. Lewelling recommended a seedling peach, named E. L's peach, to be put on the list for trial. Carried.

Judge Daniels recommended the Mignonette, from Delmas' nursery, San Jose. Carried.

Mr. Osborn recommended the Oak Knoll, free and cling. The cling had borne fruit for three years, free from curl, and the peach was large size and early. Carried.



























































agriculture as well as the manufactures of our state. The mechanics and manufacturers of San Francisco and adjoining counties are particularly invited to come forward and compete for the society's premiums.

A plowing match is to take place upon suitable grounds, and a trial of reapers or mowing machines is determined, if only stubble is found to operate upon. The fact is, T. Ogg Shaw is manufacturing machines in San Francisco, that he is willing to match against the world; and ready, at all times, to put them to the test upon any kind of cuttable substance, from hazle bush down to the finest lawn grass. His splendid exhibition of agricultural implements of home manufacture at the late state fair, was a credit to himself and the pride of the state.

We predict for the Alameda county fair, a success only exceeded by the state fair just closed.

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**ATLANTIC AND PACIFIC RAILROAD CONVENTION.**—This convention, composed of delegates from the whole Pacific coast, has adjourned after having unanimously recommended the central route, and the only really feasible one, between latitudes thirty-eight and forty-two degrees.

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**CONTRA COSTA AGRICULTURAL SOCIETY.**—The first annual fair of this society will be held at Martinez, commencing on Wednesday, the twelfth inst. Ample arrangements are in progress by the citizens of Martinez, for the convenience of all who may feel disposed to encourage, by their presence and exhibitions, the agricultural and horticultural interests of that fine county, and we predict a decided success. We shall endeavor to be there.

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**OUR METEOROLOGICAL TABLE.**—Those who will take the trouble carefully to note the remarks that are appended to the monthly table, published in the *Culturist*, in reference to our atmospheric changes and phenomena, cannot but notice the very near approximation of the weather to the predictions as made by Dr. Logan, based upon data derived from a knowledge of the great wind and water currents of the ocean. We say of the ocean, because it is from the ocean wind currents, tempered by the waters of the same, that we receive our peculiar characteristics and modifications of climate.

Nothing is more common than, year by year, to hear of the changes that are apparent in our climate; either we are getting more rain or less, more cold weather or longer winters, or more frequent showers than formerly; and almost all are ready to account for these supposed changes—for they are nothing else—from causes altogether to local in character; such as the use of the waters of the mountain streams for mining purposes and irrigation, by which a greatly increased evaporation is induced; and one writer attributes the supposed change, in a measure, to the largely increased exhalations or the breathings of men and animals. Now when it is considered that our ocean winds are constantly sweeping over our state in some direction, both in summer and winter, with a power that displaces hourly, and drives far into the interior, day by day, every particle of moisture the air may contain as the result of evaporation from the land, it is easy to imagine how small the affect of such evaporation must be in giving character to our climate.

We must go outside of the moisture from the breathings of men and other animals, and the petty evaporations caused by the operations of men, for the great causes that govern our climates and their changes; and, until something shall occur to change the direction of the great ocean water currents that impinge against our shores, or its winds that sweep so irresistibly inland, we need look for no important or material change in the general features of our climate.

## METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending August 30th, 1859; Lat.  $38^{\circ} 34' 41''$ , N.; Long.  $121^{\circ} 27' 44''$ , W. Height of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of  $32^{\circ}$  Fahrenheit, but not corrected for its height above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By THOS. M. LOGAN, M. D.

91  
23  
51  
23

## Thermometrograph.

	DEG.		DEG.
Highest Reading by day on the 7th.....	89.00	Mean of all Highest Readings by day.....	75.03
Lowest Reading by night on the 28th.....	62.00	Mean of all lowest readings by night.....	65.39
Range of Temperature during month.....	37.00	Mean daily range of Temperature during mo.	19.64

REMARKS.—The refrigerating influence of the cold waters of the Pacific, alluded to in our last month's remarks, has continued to obtain, during the whole month of August, and contributed to enhance the interest of the subject of our summer climate in a manifold degree. Indeed, with the exception of the "heated term" in June, we have enjoyed, nearly the whole summer, instead of the extra tropical heat which generally characterizes our valleys, the cool climate peculiar to the immediate coast. It is in the contrasts of temperature between the ocean and the land that is due the development of the strong sea-winds that have tempered our summer climate; but these contrasts only exist during summer. At other seasons the ocean is quite as warm and the land cooler, and, whatever the degree of aridity, the sudden and extreme rarefactions do not occur in the winter. Hence autumn and spring are both warmer than summer on the immediate neighboring coast, and, as the present unusual circulation ceases, we should not be surprised to experience warmer, or at least, more genial weather in September and October, at Sacramento, than we have during July and August just passed. Of the most notable events of the month, we have to chronicle an extraordinary manifestation of the Aurora Borealis, on the 8th, commencing about 9 P. M. and disappearing at 3 P. M., next morning. The appearances exhibited during this extended period were so various as to render it impossible to comprehend particularly a description that must necessarily be brief. We would observe, however, generally, that in its particular movements and fantastic changes, were recognized all of the characteristic features that mark this peculiar phenomenon. It on its close resemblance to the aspect of the sky before sunrise (whence its name originated) to the formation of the luminous arc, darting forth palpitating rays towards the zenith, of white, pale red and deep blood color. These latter streams were noticed to shift gradually from west to east and vice versa. The summit of the arc was not more than about from six to eight degrees above the horizon, and appeared to coincide with the magnetic meridian. The most remarkable feature, during more or less of the whole display, was the long continued gleaming of a dark rose or carmine lumination at the western extremity of the arc—this rose light, passing occasionally along the left with a fluctuating movement towards the other end. The whole northern sky, at one time, seemed to be a capola on fire, supported by columns of diverse colors, relieved and intensified by dark shadows, or rather streaks.

















## STEAM PLOWING.

**N**EARLY all our eastern agricultural exchanges are commenting upon the different successes attained by the numerous inventors of steam plowing machines, or machines for tilling the soil—for some of them do not act upon the principle of the plow, but pulverize the soil by digging or picking it, by the use of various devices attached to revolving cylinders, etc. The successes are quite varied in their character; the greater part only partial, the machines seeming to require further improvements before they can be considered complete in their performances; whilst a few are so near what is required that no room is left for doubt as regards their final complete success.

To give our readers some idea of the progress made and making in this most important of agricultural operations, we subjoin the following, from the *Country Gentleman*, as showing, also, the relative progress in this country and Europe. The editor says: For the following remarks on this subject, including a full description of Mr. Fawkes' new steam plow, we are indebted to President Kennedy, of the Polytechnic College, Philadelphia.

In common with many who has had the good fortune to be present at the five days public exhibition of Fawkes' steam plow just closed, I have been reminded by the scene, of the description given of the starting of *Fulton's* pioneer steamer on her experimental voyage to Albany. The two events have indeed many points of resemblance. That was the dawn of the era of successful steam navigation. Half a century has rolled round, and we stand at the opening of the great eventful era of steam cultivation. One Pennsylvanian triumphed over the tempest and the tide. Another now triumphs over the wasteful powers of the wilderness, and rides the conqueror of the prairies. Verily, Lancaster county, proud as she is of her Calhoun and Buchanan, will be prouder still of her Fulton and her Fawkes, whose birth places are but twelve miles apart, and within her wide borders.

Let us not, however, amid our exultation, claim too much. It is not contended by Mr. Fawkes or his friends that he is the first to conceive the idea of applying steam to the cultivation of the soil. There was, if I mistake not, a steam plow at the London exhibition of 1851; but it awakened no attention. Farmers went there, not to see it, but to see *M' Cormick's American Reaper!* In all the magnificent palace of industry, that was the grand agricultural attraction. Well do I remember hearing a jolly English farmer, as he stood with his hands in his pockets of his "box coat," surveying the reaper, say, "T'will be a pretty good sort of a thing after we've improved it." How I might have retaliated by going over to the English steam plow and saying the same thing. But America has done far better than to improve on an English model. Mr. Fawkes has invented a machine, new in principle, and distinct in its mode of operating. Let me explain. The great difficulty in the way of success in plowing, by steam is expressed in one word, TRACTION. The English early tried two broad tired driving wheels; but these sank too deeply into moist and loose soil, and of course failed. Mr. Boydell, who deserves immortality for his unceasing





















berry requires to be pulled to separate it from the stalk, it is not fit to eat; but when it separates readily, it is certainly the best of berries.

Messrs. Drew & French have taught the New Yorkers the value of blackberries; the amount of their sales last year was immense, and we understand their arrangements for the present season are not less extensive. Blackberries have sold, at least of the cultivated kinds, at a higher price than strawberries. We think they are likely to maintain their reputation.

Whenever the price sinks below the price of strawberries, they may be made into wine with profit. The following is the best method: Fill a barrel of thirty gallons, half full, with the juice of the blackberry, add one hundred pounds of loaf sugar, fill the barrel with water, drive in the bung and roll the barrel until the sugar ceases to rattle; then place the cask in a cellar not subject to great variations of temperature; loosen the bung and fermentation will commence in five days or less; suffer the fermentation to go on without moving the barrel until the hissing noise, observable by listening at the bung, ceases; bung it up tight, and in eight months it is ready for bottling. Fruit wines should never be racked, for any accidental pulp will be precipitated after the fermentation has ceased. Wine is better when not racked into a clean barrel for a time before bottling.

Many medicinal virtues have been claimed for the blackberry, such as the cure of urinary calculi, etc. But we rather suppose that this is due to the sugar contained in blackberry jam, and not to the fruit.—*Working Farmer.*

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### WINTER IRRIGATION.

**N**EXT to a country like Egypt in which rain never falls, we would suppose that the agriculture of a country like California might be benefited by a judicious irrigation. That thousands of acres that now only produce annual or biennial grasses, that fully mature and dry up before the first of July, might, by a system of artificial flooding and the use of proper grasses, be kept in green pasture throughout the entire of summer, needs no argument to prove; because there are numerous practical demonstrations of its truth, on a small scale, in the various naturally irrigated spots, that here and there gladden with their living green, the otherwise parched and barren plains and hill-sides, during the entire of our rainless season.

It would seem as though nature had planted and watered her little patches here and there, for the very purpose of teaching us the first rude lesson; but if we are slow in anything touching the progress of our agriculture, it is in the application of the principles and practices of irrigation. There is a great deal more in it than many have been led, from a mere irreflective observation, to suppose. In speaking of the advantages of its application, but few have ever given a thought to the fact, that a mere summer irrigation of otherwise dry soils, is among the very least of the benefits to be derived. That summer irrigation of grass lands, orchards, vineyards and vegetable grounds, in many localities, will be the only condition in which they



























### DRONE PRODUCING QUEENS.

**I**N conversation with N. P. Simmons, apiarist, Sacramento, on the subject of bees and their remarkable fecundity in California, he remarked that there might be instances in which the keeper of bees would find himself disappointed in this regard; that, as an instance of this, he had one hive in which the queen had never produced any other than the eggs of drones, not a single working bee having been added to the swarm after its first institution as a colony. Now it is evident that, had this hive been purchased by some one but little acquainted with the habits of the bee, soon after its first establishment as a colony, it might have been kept indefinitely with no increase either of young queens or working bees, which is equivalent to no increase at all.

But a few days ago, after our interview with Mr. Simmons, Mr. Horace Gushee, a successful bee keeper, in this city, San Francisco, made the same remark: that he had a queen bee that was laying only drone producing eggs. He was led to examine, from noticing no increase of workers in his new colony as there should have been. Mr. Simmons had discovered, on examination, that his queen, though apparently healthy, was inferior in point of size and activity, to most queen bees. Mr. Gushee found, on experiment, that his queen, though apparently healthy, could not fly. Here we have the singular fact presented, of queens perfectly competent to the production of eggs that would produce drones, but not a single worker, and in both instances, undoubtedly from some defect or want of vigor in the queens; they could lay eggs sufficiently perfect for the production of drones, but not of workers or queens.

It has been asserted, by a few of the most learned and skillful apiarists, that the drone—which is the male bee—never has connection with the queen—the only egg producing bee in the hive—except when she is on the wing, and that she never leaves the hive except for this purpose, or in swarming. Do we not have something of a corroboration of this fact in these instances of drone producing queens? Neither of them could fly. When taken a short distance from the hive neither of them could make their way back by flight, of course could not rise in the air to be met by the male bee; and yet without connection with the drone or male, could produce eggs that would hatch perfect drones. Here is a singular fact in the physiological economy of the bee worthy of observation.

All are aware that hens, with no males among them, will produce fine looking eggs, but such eggs will neither produce males or chickens of any kind; whilst the female of bees, without the male, can produce perfect male eggs. It is evident, from this, that in the purchase of bees, the inexperienced should be capable of ascertaining, by inspection, as to the condition of the queen to produce workers as well as drones, or buy of such only as can warrant the perfect condition of the queen to work for the good of her country or colony. The natural history of the bee, in its various phases, is an exceedingly interesting study, and worthy the attention of even the most obtuse ~~worker~~ of animal or animate nature.

















































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By THOS. M. LOGAN, M. D.

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## Thermometrograph.

	DEG.		DEG.
Highest Reading by day on the 18th.....	85.00	Mean of all Highest Readings by day.....	78.93
Lowest Reading by night on the 14th. ....	60.00	Mean of all lowest readings by night.....	64.33
Range of Temperature during month. ....	25.00	Mean daily range of Temperature during mo.	19.80

REMARKS.—The changeful and capricious weather, generally experienced about the period of the autumnal equinox, has predominated during the entire month, and the usual serenity of our summer sky has been frequently disturbed by cumuli clouds, threatening rain. In fact, on two separate days—the 15th and 19th—a sprinkle was perceptible. On several occasions, in accordance with what we advanced in our last month's remarks, a sultry and oppressive condition of the atmosphere prevails, especially towards evening. The chief physical changes, however, to remind us of the advent of winter, are to be found in the increase of aqueous vapor in the atmosphere, and the decline of about five degrees in the temperature of the river since last month.

Another of those polar lights, which was the subject of so much wonder and admiration on the 28th of last month, was witnessed here on the 1st. When first observed, about 10 P. M., there was a warm glow in the northwest, and two white, silvery clouds in the north. Soon the light extended in all directions, owing to the cloudy state of the atmosphere, until the entire firmament was suffused with a ruddy light—so bright at times that the hour could be distinguished on the dial of a watch. Towards 12 P. M. a splendid glowing corona was seen extending from the eastern to the western horizon, and the whole southern hemisphere appeared to be in one continuous blaze. These ever changing, luminous phenomena continued to manifest themselves in divers phases until lost in the dawning day.







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# T H E CALIFORNIA CULTURIST.

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## LIME AS A FERTILIZER.

**A** GENTLEMAN largely engaged in agricultural pursuits, and particularly in the production of the cereals, but who desires to be known in this connection only as an "Old Californian," has addressed us a note, making inquiry as to the probable value of lime as a fertilizer for our grain fields; believing, as he says, that something must be done to arrest their rapidly waning fertility, under the excessive cropping to which they are subjected. He thinks if lime could be used with the same good results to vegetation in California, that has attended its use in other countries, the fact should be known, as it is one of those earths that can be plentifully, and in very many localities, cheaply obtained.

We have no experience in the use of lime as a fertilizer of California soils, nor have we known of its application anywhere to field culture upon the Pacific side. As best meeting the views, or answering the inquiries of "Old Californian," as regards the chemical effect of lime and its action upon soils, or as forming one of its constituents, we can hardly do better than present the following extract from an essay on this subject from the pen of Dr. Wm. Prescott, which we copy from the transactions of the New Hampshire state agricultural society :

"The study of soils, in their connection with cultivated plants, present a wide field for experiment and critical research.

It is folly to suppose that all soils can be improved with equal facility and profit, or that all vegetables will flourish with equal luxuriance on the same variety of soil. The best way to impart a high degree of fertility to any given piece of earth, is a problem often very complex and difficult of solution. This renders it highly necessary that the farmer investigate the science of fertility; that he study carefully into

the chemical composition, not only of the different varieties of soil upon which he is to operate, but also of the different vegetables he intends to cultivate. He should endeavor to discover what portion of the constituents of plants he should husband with the greatest care, and what part nature will supply in water, air and other materials, necessary to their growth.

To suppose that one can produce a root, seed or stem from other ingredients than such as providence prepared and fitted for the purpose, is to assume that there is no difference between lime and iron, or that wheat and the fir tree are identical.

Finding, as we do, many different elementary bodies in all fertile soils, and in all cultivated plants, it is alike unphilosophical in science and unsafe in practice to assume that any one mineral can perform the functions of any other mineral in the economy of plants and animals. We may be profoundly ignorant of the office performed by an atom of lime, iron, sulphur, carbon, phosphorus, chlorine, nitrogen, potash or magnesia, in any of the phenomena of vegetation; yet direct experiment and universal experience has proved the necessity of having all these substances in the soil, as well as silica in a soluble form, before it can be productive of those valuable plants cultivated by the farmer.

For the formation of productive soils, an intermixture of at least three earths—clay, sand and lime—is absolutely necessary. The oxide of iron is also an excellent ingredient. Vegetables will not grow in any *one* of these earths *alone*, nor will they flourish in any *two* of them, if the *third* be entirely wanting. He who possesses on his estate these three earths—clay, sand and lime—of a good quality, with facilities for draining or irrigation, has all the materials for permanent improvement.

The other most valuable elements of fertility, and valuable in proportion as they happen to be deficient in any soil, are ammonia, phosphorus, sulphur, potash and chlorine. It may happen that one of these is abundant, and another is scanty, or that *more* than one is scanty, or even altogether is absent, etc. Now to know and understand *which* is deficient, or altogether wanting, and how to supply that deficiency, is a desideratum of the first importance to the practical agriculturist.

Plants are essentially composed of carbon, oxygen, hydrogen and nitrogen. Some small portion of the earths and alkalies, also, is found by chemical analysis in plants, which in all probability are formed from more simple elements, by the process of vegetation; for it is now ascertained that the earths and alkies are compound substances. Where the essential earths are properly intermixed, instances are recorded of land producing a succession of good crops for many years without manure; but such instances are very rare, for in this state, and in most of the states, the soil is either deficient in some one or more of the earths, alkalies or vegetable mold, or they are too wet or too dry, too loose or too adhesive, to admit plants to extract food or pabulum, in proportions necessary for their nourishment and growth.

How are these difficulties to be corrected and overcome? It is at once obvious that the deficiencies must be supplied by the addition of the earth or alkali wanting; while the tenacity, compactness and humidity is to be overcome by the addition of manures. These will not only furnish an abundant supply of carbon, hydrogen,













and ascribes the peculiar color of the cochineal to the red fig on which it feeds. Commenting on this, a late writer states it to be a decided mistake, as the fruit of this cactus is the white tuna.

The cactus producing this peculiar Indian fig is very abundant in all the mission gardens and at many of the ranches of southern California; so, if the writer's word can be relied on, we have at hand the means for a ready experiment. A trial costs nothing; and even its cultivation is pursued for a mere trifle. The cacti grows without irrigation, and the only expenditure of labor is at the time when the animals are collected—every two months—in the manner above described, and with no preparation, are ready for market immediately.

The yield, of course, depends on the size of the plant and many governing circumstances. For plants that have attained their hight, unpropped, and have been carefully trimmed, they would average ten to twenty pounds, as the annual yield, worth, according to the quality, from one dollar to two dollars and fifty cents per pound; a handsome return for a small investment of capital and labor.—*San Diego Herald.*

#### SELECTION AND PREPARATION OF SEED.

**T**HE first prerequisite to proper seeding is the selection of good seed. This involves several important considerations; among which variety, perfect development and full maturity, perfect soundness and health of the germ, and freedom from the seeds of all other plants than the one in question, are prominent.

**THE QUESTION OF VARIETY,** Can only be determined after a careful investigation into the character of the climate and nature of the soil; and these investigations must be experimental, not merely speculative. Thus, of the different varieties of wheat and Indian corn, there is a great diversity of opinion even in the same neighborhood, when there is but little difference in the quality of the soil and none in the character of the climate—a diversity more dependent, probably, upon the style of preparation and mode of cultivation than any other circumstance, and not, therefore legitimate as evidence of their relative merits. In cases of this sort, we can give no better general advice than that each cultivator test the matter for himself by actual and repeated experiments—experiments which shall determine the adaptedness of the several varieties to the length of the growing season, to the severity of the winter, if intended to be sown or planted in the fall, to the droughts of summer, the probability of their escaping the ravages of insects, and the various diseases to which plants of their class are liable, etc.

Many intelligent farmers are of the opinion that an occasional change of varieties is essential to the continued health and productiveness of the crop, and are therefore accustomed to import their seed from neighboring districts, or remote sections of the country, lest their land become weary with growing the same old sort for years in























































































**ABOUT ADVERTISING.**—We are occasionally reminded by our patrons, that our prices for advertising seem high, as compared with the prices charged by our cotemporary of the *Farmer*, as we only issue once a month. To such we would put this question: Which would you deem the best for you, the same advertisement sent four times in a month, to the same persons, or to four hundred and fifty subscribers, or once a month to eighteen hundred subscribers?

We would also remind our patrons, that advertising patronage of a newspaper, is just so much taken from the reading matter; whilst, in the *Culturist*, it is always in addition to the regular forty-eight pages monthly; of course attended with additional cost for paper, composition, press-work, folding and binding. Our advertised prices are as low as we can afford; therefore to insert an advertisement at a lower rate is no object to us.

**CALIFORNIA CIDER.**—Any one who would wish to satisfy himself, in regard to there being a genuine article of California cider, made wholly of apples, has only to visit the fruit establishment of J. L. Sanford, 76 Merchant street.

You can there not only see the whole process of grinding and pressing almost daily performed, but you can see and examine with satisfaction the mill and press, admirably adapted to the extraction of the juices of apples, grapes, or any description of fruits. And where they are making apples into cider, would very naturally be the place to buy your supply of apples at the cheapest rates.

**A SENSIBLE LETTER.**—W. WADSWORTH, ESQ.—DEAR SIR: From a pretty careful perusal of the *Culturist* for a year and a half, I have come to the conclusion that there are many ways to get ahead on a piece of land far more profitably, and with less labor and expense, than the old stereotype process of cropping from wheat to corn, and from corn to barley, and from barley to oats, year after year, as is the constant practice of thousands of farmers who seem to act and think as though nothing else can be raised. I am but an amateur myself, and find after a year's experience in corn and wheat, with my very limited means of working, I am no better off than in the beginning, except in the increase of a small stock of hogs, which have in the main taken care of themselves. I want the coming year to initiate a new policy by putting out a few grape vines, a few hop vines, some raspberries, blackberries and chufa; and it is to ascertain whether I could get them through you that I now write you, having noticed in a former number of the *Culturist* your offer to assist persons desirous of getting such things. I expect to have in a few weeks thirty-five or forty dollars, which I can spare for that purpose, and which I wish to lay out to the best advantage; it is a very small sum, but in my poverty all I can raise. I do not know the cost of any of these articles mentioned above, and consequently cannot say how many I want; but of grapes, I want the cuttings (not rooted vines, as they would be too expensive,) from the best one variety of wine producing sorts, with perhaps very few of other varieties as an experiment. Of hops, I want a small lot as a start; and of raspberries and Lawton blackberries—perhaps a couple dozen vines of each. I tried Lawton blackberry seeds last year, and they wouldn't come up. Of chufa, I want a small quantity, and am informed by a brother in Boston, Mass., that they are worth there \$10 per bushel. A friend in Sacramento tells me they ask there at the seed stores \$5 per thousand. Now if my brother should send me a peck to your address by Express, could you not sell enough to pay Express charges and your trouble, and leave me a quart or two to begin on? Or is your time too much occupied to attend to such things? If I should attempt to go after the things myself, I should eat up my little "pile" in expenses, and have nothing left to buy what I want. I could raise excellent sugar cane here also, I think, as corn grows finely, but I should have no money to buy a press and boiler, so I think I must let that go this year. The other things I must have some how or other, and if you can get them and forward to me it will greatly assist me. Please be so kind as to give me an early answer, with the probable cost of the articles mentioned, and you will place me under many obligations.

Yours respectfully,

J. S. S.

POTTER'S VALLEY, Mendocino Co., Nov. 18th, 1859.

[We will at all times favor our patrons, by giving attention to their orders, free of charge. If Mr. S. will have a peck of chufas consigned to us, we will pay the Express charges. Mr. S., we believe, will excuse the liberty we have taken with his letter. It contains a good word for a mixed husbandry, that we wish our farmers to make a note of.—ED. CUL.]

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of observations made during the month ending October 31st, 1859; Lat. 38°, 34', 41'', N.; Long. 121°, 27', 44'', W. Height of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action and reduced to the temperature of 32° Fahrenheit, but not corrected for its height above the level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 to 10 a hurricane.

By THOS. M. LAMONT, M. D.

AVERAGE OF SEVEN YEARS.

- 0.005 inch.
- 0.008 "
- 0.052 "
- 0.54 deg.
+ 2.20 "
+ 0.98 "
- .013 inch.
+ .026 "
+ .020 "
- 3.98 p. ct.
+ 2.70 "
- 1.40 "
- 1.13 days.
+ 1.13 "
- 2 "
- 1.5 "
- 1.127 inch.
+ 3.13 0.0
+ 2.3 + 0.2
+ 1.13 + 0.4
- 1.3 - 0.3
+ 1 - 0.2
- 1 - 0.6
- 1.3 - 0.8
- 3.23 - 0.2

Thermometer

aph.

	Dry.	Wet.
Highest Reading by day on the 2nd .....	87.00	84.00
Lowest Reading by night on the 17th.....	43.00	44.00
Range of Temperature during month.....	44.00	40.00

	Dry.	Wet.
of all Highest Readings by day.....	72.16	70.84
of all lowest readings by night.....	60.84	61.32
Daily range of Temperature during mo	21.32	21.32

REMARKS.—Accounts of showers in various parts of the river on the 23d, announce that the rainy season is approaching south of wild geese have indicated the same. We have not been favored with even a sprinkle in the last year there fell 8.010 inches of rain. This difference of observations—the result of which thus far go to show the season are well fixed in the average of years, the rain, their average, and sometimes in great excess as well derived from this peculiar instance of periodical phenomenon of the soil cannot depend upon the rain alone whenever it occurs, by irrigation. Colton long ago remarks—“some of the largest crops that ever rewarded the tiller of the soil; and yet those very localities, owing to a slender hope of the cultivator.” In verification of our deductions as warm as if it were a summer month. We experienced middle of the month, and on the 17th a smart frost occurred weather soon changed warm again, and on the 25th the appearance of the Aurora Borealis—the third of the season about 3 o'clock, in the northeast; thence it spread toward which the most vivid were apparently directly north the morning light.

together with a temporary rise of one foot and. For two weeks past, also, the migration approaching from the north. As yet, bowing, while during the corresponding month seasons has characterized most of our past life the extreme periods of beginning and sometimes much later or much earlier than great deficiency. The practical point to be sitting on non-periodic forms, is that the cultivator must be prepared to supply the deficiency. The effect of this irregularity on cultivation the husbandman have been gathered in California winter rains, have next season disappointed us made in August last, October has proved few days of rather cool weather about the in the exposed parts of our suburbs, but the thermometer rose as high as 88 degrees. Another was observed on the morning of the 18th, as east, shooting up streamers of variable hues, phenomena continued until it blended with





CALIFORNIA CEMENT CO.

# HORTICULTURE OF CALIFORNIA.

CLIMATOLOGY AND METEOROLOGY







# T H E **CALIFORNIA CULTURIST.**

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**JANUARY, 1860.**

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**HORTICULTURE OF CALIFORNIA.**

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BY **WILSON FLINT.**

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**CLIMATOLOGY AND METEOROLOGY.**

**W**HILE treating upon the horticulture of California, it must be borne in mind that the meteorology, or dry and rainy seasons, are the same all over its great extent of latitude and longitude, though the climate is more varied, as regards heat and cold, humidity and aridity, than that of any other territory, of equal extent, on the globe. During the summer season, cold winds sweep down from the ice regions of North eastern Asia and North western America, which are called the north west trades. These winds, as they approach the coast, meet an under eddy current of heated air, reflected from the land, and an occasional puff from the calm latitudes of the tropics.

This hot air, being forced down upon the surface of the water by the undeviating course of the northerly trade winds, condenses a vast volume of fog, reaching but a little distance to sea, but finding ingress upon the land wherever a depression is found in the coast range of mountains, which rise, in most places, above the currents of the trade winds, from Oregon to San Francisco. From the latter point to the bay of Monterey, the land formation is low, so that no obstacle is presented to the march of the fogs and cool winds into the interior, whose daily humid visitation adds much to the comfort of animal life, and promotes, in a marked degree, the success of agricultural and horticultural pursuits. The effect of this climatic influence upon three leading fruits, the apple, peach and grape, is very noticeable; as upon the first its cooling moisture is favorable, while with the two latter it is highly detrimental—as will be shown more in detail. On the north, the track of the ocean winds crosses the lower part of Sonoma, Napa, Solano, Yolo and Sacramento counties,

seldom reaching above Sacramento city. Its southern margin takes in a portion of Monterey, all of Santa Cruz, San Mateo, San Francisco, Alameda, Contra Costa, and a part of San Joaquin counties, seldom extending beyond Stockton; while its effects are visible over the northern portion of Amador, all of El Dorado, and the southern part of Placer counties—the vegetation there having a soft velvety appearance wherever the breeze came from seaward; while with a north wind, it was parched and crisp.

I have dwelt thus much on the climatology of the state, because of its direct effects upon orchard and vineyard enterprises; and at the risk of being considered dogmatic in my opinions, I assert that, for extensive apple plantations, a cool temperature and moist atmosphere must be sought; not that I would discourage the amateur and votary of experiment, from trying its culture everywhere; but when abundant and saleable crops are the desired object, and the longevity of the tree is had in view, inquiry as to soil and locality should be a primary consideration, by those proposing to invest capital, time and patience in this precarious pursuit. California presents the anomaly of the fruits of the tropical and temperate zones, flourishing side by side, yet each is matured, in a greater or less degree of perfection, as corresponding soils and climates, to which they are indigenous, are selected for their production.

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WINTER IRRIGATION.—Upon the acquisition of California by the American people, it was supposed by all new comers, that artificial irrigation was requisite to success in the cultivation of any kind of crops; and one has only to consult the early files of the newspapers published in the country, to be reminded that, no longer than ten years since, it was a subject of congratulation to our gold-seeking people, that the Sandwich Islands were in reasonable distance of the placers, so as to furnish supplies of fresh vegetables, such as potatoes, onions and pumpkins; no one then dreaming that in half a decade, this entire state was to grow on her own soil, the products of every clime, and in such abundance that the markets of our cities are the pride of our citizens and the wonder of strangers; and all this, too, of a quality to defy competition, and mainly raised without the aid of artificial irrigation.

The subject of irrigation involves the science of vegetable physiology; and the limit to which I must confine this essay, will permit no elaborate treatment of it at this time; suffice, however, to state that vast injury is annually being done to young orchards and vineyards, by an indiscriminate use of water. Where the water is turned on to the land as soon as the rainy season closes, the plants and trees, owing to the coldness of the ground, and the drowning effects of an excess of moisture, have a sickly, yellow appearance until late in the season; and where water is not applied until the ground becomes dry, it induces the emission of a quantity of fibrous surface roots, which afterwards perish, unless the water is kept on in copious supply, which, being done, the tree makes a sappy growth of wood, unripened at the approach of winter. I do not wish to be understood as condemning irrigation, but only its excessive and illtimed application. The most beneficial use of the artificial application of water which I have observed is copious winter irrigation, which can be had

on almost every acre of arable land in the state, at a moderate outlay of money, if properly undertaken, as will be seen by taking Yolo county as an illustration. During the rainy season, Putah and Cache creeks discharge a vast body of water into the tule. Now were dams made at the foot of the hills, and these streams turned into ditches and carried over her great plains, her farmers would be able to raise sufficient grain every year to supply the state; whereas, owing to our late dry winters, there crops have been almost total failures. The expense of this mode of irrigation is, when apportioned among many, but a trifle compared to the annual losses sustained by drought. Our soils being deep and naturally retentive of moisture, winter irrigation would form vast reservoirs, which, cultivation of the soil during the summer, would produce capillary attraction of the moisture to the surface through the dry season, ensuring the healthful and natural maturity of crops.

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**THE APPLE.**—The best soil for the apple in this state is a black, gravelly loam, underlaid by a calcareous, clayey marl, of which there are vast beds in many of the valleys bordering our numerous bays and rivers; next to this a sandy loam with a compact undersoil, to prevent leaching. Red calcareous clay lands should be avoided, as too heating for this fruit. Much controversy is had respecting the mode of cultivation, so as to encourage surface or tap-roots. My experience is in favor of surface feeders, which are within the reach of atmospheric influence; such cultivated trees come into bearing sooner and produce finer flavored fruit. It is noticeable that, on the deep alluvial bottoms of some of our rivers, where the tap-root penetrates to a great depth, that the trees make a prodigious growth of sappy, spongy wood, destitute of fruit spurs. It remains to be seen whether such trees, after they shall have obtained great size and age, and have thrown out side roots which will arrest the descending sap and render the tap-root less influential in its action, will not make up in quantity at a future time, for their failure in not coming into early bearing. In all of our great valleys and over the rolling hills, we are subject to violent storms of wind at the change of the seasons, both in the spring when the blossoms are setting, and in the autumn before winter varieties have ripened; therefore it is a matter of prudence to cut the newly planted tree down so that it will form a low head; thus the branches, being near the roots, the action of ascending and descending sap is rapid, and the trunk of the tree becomes stocky and able to resist the gales which blow off most of the fruit on those trained up in whip-stock fashion.

Another advantage of low pruning is that the tree is kept in reach of the pruning knife, and where the tree comes into bearing, a great saving is made in gathering the fruit; as where labor is high and likely to remain so, and fruit shall be cheapened, the difference between picking the fruit while standing on the ground, and climbing a ladder is a large item. But there is another reason in favor of low training more important than all others. The fruit growing season on the Pacific coast, is subject to an almost endless sunshine, and when the trunk and branches are exposed to constant rays, the bark becomes dry, and vegetating action ceases on all of those parts affected, premature decay takes place, and what little inferior fruit it produces

will be blistered, to a greater or less extent, and subject to the dry or bitter rot.

Scarcely too much pains can be taken in selecting healthy, young trees, and in thoroughly preparing the ground for their reception—as the after success of an orchard depends, in a great measure, upon this prerequisite, and the care it shall have the first two years, when the roots will be established, and the top have received the general form which it will afterwards retain. Dig broad, deep holes, throwing the top soil, and, if convenient, a few spadeful of manure into the bottom, and be careful not to plant the tree deeper than its natural position in the nursery. Many trees are lost, because their roots are placed so low that the early warmth of spring expands the buds before the earth has become sufficiently warm so as to form the granulations, and force the emission of fibrous roots, in time to sustain the incipient shoots. Years of experiment, as a nurseryman and orchardist, have satisfied me that orchards should be planted, in this climate, as early in the fall as practicable—even before the trees shall have cast their foliage, as some portion of the sap being up, its descent aids materially in forming the granulation of the roots and, the ground being warm in the fall, the emission of spongioles takes place during the reception of the early rains, and harden into rootlets through the winter, so as to give a supply of food to the buds on breaking early in the spring. I consider that trees sustain no injury by removal after the first of November, although the leaves may have to be stripped off by hand and the tree reset in dry soil—as by that time the weather is cool and the newly stirred earth becomes an absorbent of moisture from the humidity of the long nights.

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**THE PEAR.**—Experience is demonstrating that the pear withstands the vicissitudes of climatic influence far better than the apple; and it is a subject for congratulation, that its extensive culture, in all parts of California, is destined to meet complete success. Of all fruits, perhaps none are so adapted to general use, as an article of food, as the pear. Its inviting aspect, sprightly vinous flavor, sugary, melting, aromatic taste and nutritious ingredients, should commend this fruit to an increased and extensive cultivation; succeeding equally as well and coming almost as soon into bearing when worked on its own stock as when dwarfed on the quince, scarcely any choice can be made as to which is most preferable, it being rather a matter of locality as regards exposure to strong winds, the dwarf being of a habit which can be trained to the height of a field of grain, at which height little injury would be perceptible in the most exposed situations. The remark is frequently made that pears grown on the quince stock are of a more melting flavor, than those produced on standards; the natural inference being that, as the pear root is of a tap tendency, the small feeders are at a great depth, where the ground is cold, consequently the food sent up gives the fruit a coarse, watery, gritty character; while the quince root, being a surface feeder, is within the influence of light, heat and air, requisite to the healthy functions of the tree. Much complaint has been made of the ill success attending the culture of dwarf pear trees in this state; now success is, in a measure, owing to the fact that, at an early period, some nurserymen, owing to the scarcity of imported stocks, used the California Mission quince to propagate trees on—a stock totally worthless for

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that purpose, as the trees worked on this variety make but a feeble growth and soon perish.

Another cause of failure is the planting of the trees on bad soils. The dwarf pear requires a moist, rich situation and clean cultivation; with these requisites, when worked on the right kind of quince, its extensive cultivation will prove highly remunerative. A prejudice exists against dwarf fruit trees, for large plantations, because it is alledged that they are shorter lived than standards. Now, as early fruiting is a paramount object in a country where fruit is scarce and high, it will be seen that dwarf plantations will repay the outlay before standards have produced samples of fruit; and, although the dwarf requires a better soil and more expensive cultivation, yet no investment will pay a better return. It is a stupid error to suppose that after carelessly planting trees, they can be left to neglect, and survive or ever give satisfactory returns. In the Atlantic states, trees neglected in this way sometimes struggle into bearing condition, because there they have the aid of periodical summer rains; but in this state the reverse is the rule, and this accounts for the vast number of fruit trees which have annually been sold by nurserymen, two-thirds of which, it is safe to affirm, have perished.

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**THE PLUM.**—This fruit has proved to be an abundant, certain bearer in all parts of California; not only on the coast in the sweep of the fogs and ocean breezes, but in the hot valleys and in its indigenous state, on the highest ranges below the bald peaks of the Sierra Nevada mountains. Its cultivation should be largely extended, particularly of the Damson and Prune varieties, for purposes of preserving. Scarcely a limit can be fixed to the demand for the Prune of Commerce. Exemption from the diseases to which this tree is subject, in most all other countries, and our cool nights which prevent the ravages of the curculio, render the culture of the plum, on a large scale, a matter of certain profit; and for hedges to surround vineyards and dwarf fruit trees, it is peculiarly adapted, as it is of rapid growth and resists the wind by its tenacious upright habit, and requiring little aid from the pruning knife—a thick set hedge is no detriment to its bearing fruit.

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**THE CHERRY.**—This delicious and cooling fruit has not yet become plenty, although giving great promise wherever it has had a trial. Low training, so that the branches shade the body to prevent the sun from cracking the bark, which makes them gum badly, is necessary to the health of this tree—and especially the pruning knife should be used as little as possible.

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**THE PEACH, APRICOT AND NECTARINE.**—These three fruits possess the same general characteristics, except in the range of the coast winds, where the peach and nectarine are subject to the curl of the leaf, occasioning the loss of the fruit and the denuding of the tree of its first spring foliage. Scarcely a fair crop of peaches has yet been obtained from any of the large peach orchards in the fog range; and it is a noticeable fact, that of the immense quantities of fine peaches, to be found in the

San Francisco market, during the season, most of them are received from orchards in the neighborhood and above Sacramento, or the north part of Sonoma and Napa valleys.

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**THE FIG.**—Those especially from the Mediterranean, grow to great perfection in most all parts of this state, out of the immediate effects of the cool and moist atmosphere of the coast. Enterprise could not fail of success by engaging largely in the culture of this fruit for purposes of packing for export.

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**SMALL FRUITS.**—As the blackberry, raspberry, strawberry, currant and gooseberry, may be said to succeed very well in the moist districts of the coast range; but in warm, dry localities their extensive cultivation cannot be recommended, except in moist situations.

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**THE GRAPE.**—Upon the culture of the vine, the writer hopes to be pardoned for indulging in extended remarks; believing that this branch of industry is destined, in no long time, to become the leading pursuit of California enterprise; associated as the vintage is with various manipulations of manufacture, utensils for packing, storage, marine commerce and monetary exchange. It is admitted that in all countries, national and individual prosperity depend upon the proper economy of labor, and a multiplication of the industrial pursuits. This truism has been lost sight of by the farmers of California, who, as a general thing, occupy all of their available land either for a crop of wheat or barley, depending on a distant market for their supplies of meat, vegetables, and sometimes hay for their teams, subjecting themselves to an expense which often swallows up the proceeds of their solitary resource. To this lack of a proper division of crops can be attributed the precarious business of farming, as many of the great producing districts of the state are subject to such frequency of inundation or drought, that the grain crop is quite as often a failure as success. Now over large districts of the great valley of Sacramento and San Joaquin, extending up into the foot-hills of the mountains, are lands of sufficient extent to occupy millions of people in the cultivation of the vine; and were joint stock companies formed, for the purpose of bringing out the rivers at the foot of the hills to aid in the planting of vineyards, I think capital so invested would be far more remunerative than, when outlaid in fluming rivers for golden treasures, which most frequently, in such undertakings, are found to have taken "to themselves wings."

Was every farmer to plant five or more acres of vineyard, he would be sure to find a ready cash market for his grapes, by hauling them to the wine-maker, and there would be little more trouble or expense than in the cultivation of an equal number of acres of grain, while the receipts would be so vastly in favor of the vineyard that there could be no comparison. The wine market cannot be readily overstocked; while the wheat is of such periodical fluctuations as often to entail disaster, because much of its value is consumed in freight and wastage when seeking a market abroad; while



on the article of wine, benefits are acquired by a voyage at sea, more than counterbalancing the cost of shipment and accruing interest.

Of the manner of planting vineyards and the various operations connected therewith, I beg to refer to the treatise upon the vine, furnished the State Agricultural Society for their 1858 report, by Colonel Augustine Haraszthy, of Sonoma, as the value of that report, by this intelligent and practical vintner, can never be too highly estimated; and were large editions of this essay scattered broadcast among our people, it would materially aid the development of this growing interest.

Much doubt exists as to the kinds of grapes most desirable to cultivate—future experiment can only solve the problem. However, no risk can be ran in planting largely of the California Mission, the Catawba, Black Hamburg and all other strong growing sorts. The Mission grape seems particularly adapted to this climate, as it is a very strong grower and will make a good stock to graft the more feeble foreign sorts on; thus large vineyards can be expeditiously changed to any variety which shall be discovered to possess the best qualities for wine-making. All of the delicate foreign grapes come to great perfection, in open culture, throughout our grape-growing districts; but whether they acquire the high flavor and aroma of their native districts, where the nights are warm, is a question; for, be it not forgotten, all over California the nights are cool. This phenomenon presents to my mind the only obstacle against our state becoming famous for the production of the richest vintage of all vinelands.

Most of our citizens coming from portions of the Atlantic states and Europe, where the vine is little cultivated, much ignorance consequently exists among them, with regard to the habits of the vine and its proper treatment; the prevailing error seeming to be the selection of rich, moist soils for vineyard sites, where a rank growth of wood is secured at the expense of quantity as well as the quality of the fruit.

The most desirable site for a wine-producing vineyard, is a red soil intermixed with the debris of volcanic remains, irrigation being of secondary importance, and mainly useful only in bringing the young vineyard sooner into the bearing of a greater quantity of fruit. On dry soils, the vines should be planted quite near each other and allowed to trail along the ground, which keeps the moisture from evaporating. On deep, rich land, they should be trained up quite high to a stake, so that the sun can warm the ground and stimulate the roots which are apt to run too deep. On planting a vineyard, the young plant, on removal from the nursery, should be exposed as little as possible to the sun or a cold wind, as the root of the grape is very sensitive. When it is desirable to plant cuttings in vineyard form, or place them in nursery the first year, they should be taken from the old vines as soon as the leaves begin to drop, while a portion of the sap is up, as this materially assists the cutting in the granulations from which the roots are emitted. By adopting this course, only a small percentage of the cuttings will fail to grow; whereas, if left on the old vines, and exposed to frost, many of the eyes will be frozen as they begin to swell in the warm days of January and February. The effect of early pruning on the old vine is, to bring it into leaf and blossom the ensuing spring, some days before those later pruned and consequently to accelerate in equal ratio the time of ripening; but when it is





realization, and Higgins went out to his country seat, happy as a hen over a new laid egg. He had seen in one of his country papers—for he takes a half a dozen, and reads them—a splendid account of ‘profits on poultry,’ based upon the success of a small farmer’s wife, out in Rhode Island. She kept twenty hens, according to the statement, raised a hundred chickens, and sold two hundred dozen eggs, clearing fifty dollars above expenses by the operation. The hens were attended to at intervals of time, when Mrs. Smith had nothing else to do, so that she could look upon her roll of fifty dollars as so much clear gain.

Higgins was an excellent accountant, and he immediately made a calculation of of raising poultry upon a large scale. If, with twenty hens, worth not to exceed ten dollars, fifty dollars could be made, then two hundred and fifty dollars could be made with a hundred hens—and twenty-five hundred dollars with a thousand hens. The stock would cost not to exceed five hundred dollars, and the necessary buildings and fences not over fifteen hundred more. Making a large allowance for disasters, which he could not foresee, he could hardly fail to clear two thousand dollars by the operation every year. This was a better business than any shipping he was ever engaged in, and it would have this advantage, if successful, that he could live at home with his family, instead of being off in the city half of the time or more. To make the thing sure, so that there could be no mistake about it, he put it upon paper, thus:

1000 Stock Fowls.....	\$500
Rent and interest on buildings worth \$1500 ..	150
Feed of Fowls for a year, say.....	750
Wages of a woman to attend them.....	100
	<hr/>
	\$1500
On the balance sheet he might safely calculate at the end of the year on 1000 fowls.	\$ 500
1000 chickens worth.....	500
100,000 eggs at one cent and a half each.....	1500
Manure .....	100
	<hr/>
Total value of sales and stock on hand.....	\$2600
Deduct expenses, as above.....	1500
	<hr/>
Profit.....	\$1100

This was figuring very low, and only allowing less than half the profit realized by the Rhode Island woman. He really expected to do much better, for he would have his hen palace so warmly built, that the hens would lay all through the winter, when he could realize from thirty to forty cents a dozen for them. He expected, too, to raise two thousand chickens instead of one, and meant, if possible, to make them shell out over a hundred thousand eggs. He had known hens to lay two hundred eggs a year. Higgins was so well pleased with this speculation upon paper, that he determined to carry it out at once. He selected the southern slope of a hill, covering about an acre, and inclosed it with a high picket fence, so that no intruders should rob him of his expected treasures. In the middle he erected his hen palace, a two story building, with an underground apartment, well lighted upon the south for winter accommodation. It was furnished with any quantity of nests, lined with clean straw, and with capacious boxes for holding bushels of eggs. The peak of the roof was

mounted with a tower, full of pigeon holes and boxes. On top of the tower a huge gilt cock was perched—a very ornamental and useful bird; for at the hour of twelve, noon, he regularly clapped his golden wings, calling all hands to dinner. This device greatly astonished the natives, and whatever might be thought of Higgins and his speculation by his neighbors, this gilt rooster was a revered institution. A town clock, in the shape of a bird, was a novelty even in this part of Yankee land.

Higgins had heard that there was danger of crowding hens into too narrow quarters, and to prevent this calamity, he ran out two cheap wings from the main building, two hundred feet long each, so that he could separate them, in case disease should make its appearance among the fowls—a calamity that he did not at all anticipate.

The two thousand dollars were at length expended, the hen homestead completed, and stocked with a thousand fowls. Higgins was not particularly select in his stock, a hen being a hen with him, whether Dorking, Shanghai, Chittagong, Black Spanish, Jersey Blue, Creole, or Leghorn, or a mixture of all these with the Dunghill bird of the natives. He had few thorough breds, except a lot of game fowls, which he introduced on the second week of the experiment. The game rooster treated the rest of the cocks as game, and killed four of them the first day he was in the yard, before Higgins had time to interfere. This disaster, however, was soon remedied and the fowls did remarkably well until they had consumed all the grass in the yard, and laid out the old litters that had been conceived in their old homes, where they had plenty of room. Higgins was jubilant for a couple of months, and eggs were sent off by the barrel, to the New York market, during the months of October and November, last year. As the winter set in, and the fowls began to feel the effects of their confinement, the laying began to grow 'small by degrees and beautifully less,' until a dozen a day was the utmost laying capacity of the whole establishment. A cold snap came on in January, and all the egg fountains were sealed up, as tight as the water in the fish pond. 'Nary egg' was the stated morning report of Bridget, for three weeks. The roosters crowed lustily, and the hens clucked and cackled, as if they were getting ready to do a big business, but they did not shell out.

As the spring opened, the egg fountains were again opened, but in diminishing numbers. The hens indeed laid, some of them eggs, and other some laid low. Many of them were minus toes, badly frost bitten, some were lame, and a great many were diseased with the staggers, and fluttered about as if they were badly corned. The result of the speculation comes out in the following conversation, which occurred as I alighted from my wagon at Higgins' door, lantern in hand.

'I thought, Diogenes, that you gentlemen of the agricultural press, represented poultry-raising as a highly pleasing and profitable business; that no stock on the farm began to pay so well.'

'That is true, if yon know how to take care of them, and do not get so many on hand, as to have them interfere with one another.'

'Well, I tried last fall, got all the fixings ready, at a cost of two thousand dollars, had plenty of eggs for two months, and then the fowls began to droop, and I have had more or less of them sick ever since.'

‘Why didn’t you sell them, Higgins?’

‘Nobody would buy, because they were afraid of diseased fowls, and I dare not eat them myself, for the same reason. I am now in a pretty fix, can’t sell, can’t give away, with as pretty a hospital on hand as any doctor would like to attend. Guess I will lose five hundred dollars by the experiment, clean cash; glad to get off so.’

‘Boarding is excellent business, Higgins, but you should not put a hundred people into rooms meant for ten, some of them might leave.’

‘Just so, I see, half of mine have left already.’”

### CRANBERRY CULTURE.

*Editor Culturist*:—California imports largely of the cranberry, not only from Oregon, but from the Atlantic states, and the demand is positively on the increase, which is quite the reverse of what is true as regards almost any other description of wild or cultivated fruit. There seems really no fruit or other berry that can well supply its place; the question, therefore, has occurred to me: can cranberries be grown in the climate and soil of California; or must it be said that, for our supply of this valuable fruit, we must always look abroad. I believe we ought to be able to raise our own supply; I believe we can do it; more than this I am determined to try, and now my object is to make inquiry and, if possible obtain some reliable information in reference to soils the best adapted to the growing of this valuable berry.

I notice a very great difference in the size of the Atlantic and Pacific coast cranberry; the former being decidedly superior to the latter. Does this arise from a natural superiority of one variety over the other, or something in the soil or climate of the Atlantic over the Pacific coast favorable to this one particular fruit; whilst for all others, our own climate is acknowledged to be greatly superior?

Allow me another question: at what hight above the Sacramento valley, if upon suitable soil, can I hope to succeed in the production of the cranberry? I am in possession of one of the very few mountain meadows, of several acres in extent, so perfectly level that, in forty hours time, by a dam but three feet in hight and ten rods in length, I can completely flood about ten acres to a depth of four inches. The soil is rich, producing abundantly of mountain clover. Now is such land suitable, and how must it be managed, to fit it in the best manner for cranberry culture? If you can spare the room in your valuable journal, will you have the kindness to lay my inquiries before the readers of the *Culturist* in their present form, or if need be, considerably curtailed of their present proportions?

Truly yours,

CHAS. PRESTAL.

We have personally experimented in the growth of the cranberry with varied success. Our field of operation was in the vicinity of some of the finest natural cranberry marshes in the state of Michigan. We have tried them on low swamp or



subsequent suggestions and statements, and it will not be amiss for the inexperienced cultivator to remember it. If he bears it in mind, he will avoid many difficulties which have discouraged others. It is this: *Dead sand, water and air*, are the elements upon which the cranberry feeds the best, and attains its highest degree of perfection; therefore that soil and location which has these advantages is best adapted for the growth of the berry.

*Beach sand* stands the first. All other kinds must be rejected if this can be got. Experience teaches us this. Those yards which are wholly bottomed by *beach sands* flourish and yield abundantly—far better than those that have a different soil. During the last fifteen years every variety of soil and situation have been experimented with, and the results are entirely in favor of the *beach sands*. On Cape Cod, the greatest cranberry field in America, situations are sought for where the cultivator can be near to the shore, that he may be able to put on this sand, if it is not on his chosen location.

We will, in this connection, call attention to a small yard with which we are acquainted, which is situated near to the sea shore. It was originally a pond; water stood in the basin, but it was not deep. On the banks and edges of this pond was sand in abundance, which the owner spaded down to the water and continued to fill in. He planted; some said it would not do much, but now it is one of the handsomest yards in the country. Everything seems to be favorable—soil, situation and water—and the result is heavy yields of berry. In this, as many as three bushels have been picked off a square rod; and so well is it now known that situations where beach sand abounds are the best, that the most practical men are buying up such locations with the view of converting them into cranberry yards.

We are acquainted with one cultivator, whose yards produce from two to three hundred bushels of cranberries annually, who has the greatest proportion of his vines planted in the beach sands, and some few in loam. The difference between the two is marked: those in sand are fruitful, those in loam are but small producers. He therefore carts off the loam, or carts upon it beach sand. We could produce a vast body of evidence to demonstrate that beach sand is better adapted to develop the cranberry than any other soil; but the cases adduced are sufficient.

There is another reason, though, which should not be lost sight of, why this sand is so much better than other soil. It is light, porous, and is almost incapable of supporting weeds. It admits the atmosphere freely to the roots of the vine, and is found to be the only soil in which the rank weeds can be effectually kept down. It will thus be clear to the reader that, in such a situation, the plant can throw out its runners in every direction, and having no weed to contend against, will therefore spread readily, and soon become matted—a condition of the yard towards which the practical man looks with anxiety. If you are about to make the attempt to cultivate the cranberry, if possible, obtain beach sand in which to set out your vines, or coarse sand when the former cannot be obtained, but the white is preferred.

*Peat* is found to be excellent, in fact, next in value and importance to the beach sand, for the growth of cranberries; but peat wants management and care in its

preparation, in order to be made useful to the vine. In selecting a peat swamp to be converted into a cranberry patch, it is necessary to take off the top turf, or grass, and if possible give the yard a little incline. When this is done, it is unsafe to plant at once. If you do so, you will find that the peat will in the following summer cake and crack. It will be hard on the surface, and some few inches below stiff and dry. The veriest tyro in cranberry cultivation knows that such a condition is very bad for the vine.

*How is this difficulty obviated?* Prepare the surface as we have stated above, and leave the yard exposed to the frost and weather for one year. When the frost is thawed out of it, it will crumble and be powdery. It will never cake afterwards. It will be light and porous. You may then with safety plant your vines, and with moderate attention they will do well.'"

### PRIZE ESSAY ON POMOLOGY.

BY WILLIAM SUMMER, POMARIA, S. C.

*To which was awarded the Premium at the Annual Meeting of the State Agricultural Society of South Carolina, in 1858..*

THE blessings of fruit all should enjoy; and, favored as we are, with a genial climate, where nature has done so much in bringing to perfection the choicest and most delicious varieties, it should be one of the universal comforts of life. The arguments which could be brought to bear upon the advantages of fruit-culture, are so numerous, that we will only allude to a few. People of all ages and conditions of life enjoy the delightful refreshment which the juices of fruits bestow. The fondness for the various unwholesome compounds and imitations of fruits, indicate a love for them, and the displacement of *confections* would have a most beneficial effect upon health, for there is no diet so salutary, so refreshing and delightful, both to the young and the old, as ripe, fresh fruits—and there are not a few *diseases* for which fruits are the best remedy. Those whose breakfast, or first food in the morning, is of fresh fruits, seldom suffer from dyspepsia or bilious complaints, as is proven by the inhabitants of Italy, where the free use of grapes and cantaleups are indulged in. The climate is, in many respects, similar to ours. The acid of fruits is a panacea for scurvy, and eruptive disorders. The delicious pear is a perfect remedy for dyspepsia, and ripe peaches have been found to be a specific in summer complaints, and the juices of fruits tend to drive humors to the surface, and to purify the blood, and instances are on record where whole families, with scrofulous tendencies, have been saved and restored to blooming health, by returning back to the simple fruit diet of nature. In Herefordshire, where apples abound in every hedge, and cider is so plentiful as to be the almost common beverage, there is not a case of dropsy to be seen. Doubtless *dram drinking* and intemperance itself would be infinitely lessened, and perhaps utterly banished from our society, by the use of pure and wholesome wines,

made from our own vineyards, and an abundant use of fruits, for the love of ardent spirits is a corruption of the true and natural taste of fruits; and as it has often been observed that those who indulge in the excessive use of ardent spirits, are extremely fond of fruits by nature. Give such an abundance of fresh and wholesome fruits, and they will in time banish from their appetites the liquors and various poisonous mixtures. Surely any effort is worthy of being made to do away with the abominable and degrading habit of *whisky drinking*, which, in the end, will fill our poor-houses with paupers, to be supported by the taxes of the very men who yearly support the government, but who are indifferent to the work of reform. To carry out this object, we would recommend the culture of the grape, and the making of a pure and wholesome wine. In Italy, wine is so abundant that it is sent to the laborers to drink, instead of water; and, although the Italian may be careless and indolent, he is seldom a drunkard. His poor and degraded condition comes not from drinking wine, for with bread and olives, it forms the chief support of the poorer classes; but the fault lies in his oppressive government, and the beggars who come amongst us are from the poorer mountains and unproductive regions, where the principal subsistence of the people is the maron or chestnut. In France, and in Germany, on the Rhine, which is one continuous vineyard, the people are sober and never addicted to drunkenness. There, wine takes the place of coffee with us. These are some of the many reasons, besides the pleasure and gratification which they afford, which make us urge the universal culture of fruits; and we trust the time will soon come when they will be considered indispensable to the comforts and necessities of every household.

As in all culture, so most especially in fruit-culture, *deep tillage* is the principal system. Subsoiling or trenching is absolutely essential, to enable the roots to run down into mellow and rich soil, and thus produce an abundance of fair, large, luscious fruitage. When the ground is thus prepared, and the holes made wide to receive the roots of the trees, large enough to prevent crowding, and care is taken not to plant too deep—for nothing is more injurious—they will, with care and attention, flourish. The proper enriching of the soil, thus deeply tilled, is of hardly less importance. Trees must not only be fed, but every tree must have its appropriate nourishment. One kind of nourishment conduces to the growth of foliage and wood, another tends to fruit; and, while one kind of plant or tree requires a particular element for its subsistence, another demands a far different element. For example, lime is a great absorbent of acids, and thus naturally assists in the elaboration of the juices of fruits. This is particularly observable in the apple, the bark of which is principally made up of lime, which has been thrown out of the circulation as useless, after it has been employed in its vegetable economy. To all trees, doubtless, a vegetable substratum of soil is necessary, composed of decayed wood, grasses, leaves, pond-mud or vegetable molds. But with this alone, without ammonia, and the sulphates and phosphates, or lime, to absorb and retain these, the fruit may be large and fair, but it will be rough, course and astringent on one hand, or flat and tasteless on the other. A pear or an apple, on a cold soil, is found to be a different



thing from what it is in a rich, warm loam, with a well drained subsoil. The soil and culture may be difficult to select and adapt to the various fruits, but with a little care and judgement, and the proper food, they may be successfully cultivated, almost in all localities, by observing the following requisites :

1st. *Wood-ashes*, containing as they do, all the elements necessary to their growth, (except carbon, which is supplied from the air) is a congenial element for all trees and woody growth.

2d. That *lime*, whether in the form of marl, shell, plaster, or stone-lime, is a specific for apple trees, and that apples are largest and fairest, grown in a calcareous soil.

3d. That *phosphates*, in the form of bones (which are principally composed of lime) or prepared super-phosphates, are specifics for pears and grapes.

4th. That *ammoniacal* manures, as guano, horse-dung and urine, are specifics for the peach, and give flavor and spirit to all other fruits.

With these general remarks we come to the divisions of fruits which are generally acknowledged by pomological authors :

THE APPLE succeeds well in most portions of our state, and with proper cultivation yields regular and beautiful crops. It is a vigorous and hardy tree, growing in almost any kind of soil, but thrives best in a good loam, with a clay subsoil. A porous subsoil is often more favorable. Some varieties do best upon a deep, sandy loam. All the early varieties require a warm, dry soil, which hastens their maturity. Others flourish best in a strong, moist loam. Late kinds require a cool soil to retard their ripening. For this purpose we have found mulching with leaves, pine-straw, saw-dust, and such material, of great benefit, when applied after a good season, in mid-summer. The fruit will mature gradually, and attain greater perfection, and will keep better during winter. Upon the whole, the apple is one of the most valuable fruits. Some kinds are more luscious and delicate, but these qualities render them transient, while the other varieties endure, and may be had in excellence almost during the entire year. Various other fruits, when duly attended to, will assume far more comparative importance ; yet the apple, from its hardness, early productiveness, great excellence, and being always in use, either fresh or dried, will, in the main, hold a decided superiority over any other species of fruit. It is useless here to enumerate all the uses to which the apple can be appropriated in the household department, but an excellent writer thus admirably sums up its uses :

"The fine kinds are excellent for the dessert. Besides the pleasure of this luxury and nutriment in rich apples, they have an excellent medicinal effect—they are greatly laxative, and keep the system in a wholesome condition. They serve as a healthy repast for children, who would be eating something that would be injurious from too much nutrition."

Apples are valuable food for all kinds of stock. We not only give them freely to our hogs, but feed them to our milch cows, and frequently to our horses. All seem to thrive, and eat them with good relish ; and we would advise our good housewives to make a plentiful supply of cider vinegar, which is better and much more prefera-

ble to most of the vinegar sold as white wine vinegar, often a composition, from the drugs of which its composed, a slow poison, and destructive to health.

The apple is admirably adapted to the upper portion of our state, where it thrives in great perfection.

If possible, winter varieties should be planted in lowlands along our streams. They would flourish and attain great perfection, as may be seen from the old orchards which were planted forty or fifty years since, along the lowlands of Broad river and its tributary streams. The Hughes Crab has, in many locations, attained the size of forest trees, and bears large quantities of fruit, which cover the limbs with its abundant fruitage, even after severe frosts.

The principal winter varieties introduced from the Northern nurseries, mature too early for winter use, and recourse must be had to *native Southern varieties to supply this deficiency*. This subject has attracted the attention of our fruit-growers, and, within the last seven or eight years, several hundred varieties have been brought into notice, which will compare with any of the best Northern kinds—ripening from October to January, they supply this important want. There are so many varieties worthy of cultivation, that to give a descriptive list of the kinds, would extend this essay to a small volume.\* We would, however, name among the native varieties, the Anderson, Augustin, Cherokee Red, Cook's Red, Davis, Elgin, Epting's Red Winter, Epting's Premium, Foust Frey, Southern Greening, Oconee Greening, Gully, Hall, Hoover, Hopper, Hammond, Carolina Red June, King, Lexington, Lever, Maverick's Sweet, Meadow Woods, McDowell's Winter, Neverfail, Perkins, Clark's Pearmain, Cannon Pearmain, Peakes Red Winter, Price, Shockley Wall, Wander, Walker's Yellow—these are all worthy of a place in any collection. The best distance for planting apples is twenty feet, and the land should be kept in good condition and culture, as no tree can be expected to flourish and produce good fruit if neglected. The trees should be branched within two or three feet of the ground, and a low spreading top should be encouraged by judicious pruning and training.

The apple is subject to the attack of several insects—the *bark-louse*, the *catterpillar*, the *canker-moth* and the *blight*.

For eradicating the bark-louse, we use alkaline washes, made of potash, at the rate of one pound to two gallons of water, applied with a painter's brush in spring, just before the buds begin to expand their leaves; but a preparation of soft soap, of the consistency of cream, is the safest and best remedy we have yet tried. This, with the addition of a compost of chip, rotten leaves, etc., to assist in giving a good growth, will soon cause the trees to flourish and overcome this troublesome and destructive insect.

The *catterpillar*, some seasons, do immense injury. The best mode of destruction is, to cut off, during winter, the branches upon which they have deposited their eggs,

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\* We shall, as an appendix to this essay, give complete lists of all fruits worthy of cultivation in the South.

and burn them. Every nest of eggs thus removed—which is done in a few seconds—totally prevents a nest of caterpillars in the spring; but when these appear, no time should be lost in clearing the trees of them. Soap suds, in which salt has been added, and applied by means of a sponge at the end of a pole, is the best method to rid trees of them, when they have made their appearance. Salt water, injected into the web with a syringe, is also effectual; so, also, is tobacco water.

The *borer* (*saperda bivitatta*) is an insect which enters the tree at a bud, and cuts into the solid wood, frequently doing immense damage. The first indication of their presence is the appearance of small round holes. The best remedy, in young trees, is to cut off the branches below the entrance of the borer, in order to save them; or they may be destroyed by running a piece of wire into the hole; but, as preventive is better than cure, we would advise the tree to be kept smooth and clean, and well washed with some alkaline solution, such as has been recommended, to which add a little sulphur. The insects would then be prevented from harboring, if this was applied in June or July.

The *apple worm*, or *codling moth* (*carpocapsa-pomonella*) was imported from Europe. During the latter part of May, these moths lay their eggs in the eye, or blossom end, of the apple, and sometimes in early pears. They hatch in a few days, and the worm eats into the apples, and, in a few weeks, attains its full growth. The apples ripen and fall prematurely. Soon after the apple falls, and sometimes before, the worm crawls into the crevices of the tree, or other places, and spins a cocoon of a white, delicate web, where it remains until the next season. It is quite probable that, with us, it comes out and produces a second generation. The only remedy that is available is, to permit swine to run into the orchard and eat the fallen fruit. By scraping of the bark of trees in spring, many would also be destroyed.

The *canker worm* (*anisopteryx pometaria*) affects the apple, the quince, mountain ash and hawthorn. One of the principal remedies which has been tried is, to prevent the female from ascending the tree to deposit her eggs; but none have yet been discovered as easy, safe and effectual appliances. One of the best is, to encircle the tree with a canvas belt, coated with a mixture of tar and train oil, to be renewed several times. Applying the tar directly to the tree is injurious. A species of *aphis*, infesting young trees, is easily destroyed by the use of whale-oil soap, and by lime-wash.

The *blight*, which sometimes kills the terminal shoots of the branches, has been variously ascribed to the sting of an insect, and the effects of the heats of summer seasons; the cause has not been satisfactorily ascertained. It rarely proves a formidable disaster. The young trees are sometimes disfigured by it, and, for a time, checked in growth. We have always cut off the branches and burned them. There is frequent complaint of the rot in the apple, but it is owing to a deficiency of lime in the soil; and where this is added the apples will be found to mature perfectly. The upper districts produce the finest and best flavored apples; but we have seen fine specimens of winter varieties grown as low down as Orangeburg district. Even on the sea-coast good early and autumn varieties have been grown. For the latter

locality we would recommend those grown on the Paradise or Doucien stock, which dwarfs them, and brings them into early bearing.

**PRUNING.**—In pruning, the principal object is to give form to the tree, and to promote the vigorous growth of the shoots and branches, and to check the growth of certain parts, in order to produce fruit. Every young tree needs attention, but in pruning off the side shoots, it is better only to remove a few of the larger ones at the bottom, and pinch of the ends of all the rest, which directs the sap into the leading shoots; the tree then advances in height and at the same time enough is left to form wood on the stem and to stiffen it, and furnish stout, well-proportioned trees. When a side shoot is disproportionately large, it should be cut off closely at once.

By treatment similar to this, any form may be given to a tree, as the sap tends to all parts of the tree. If we wish to alter the form of the tree but slightly, shortening the tips of the shoots will be sufficient. An even, well-balanced, well-trimmed head for standards, may then be easily obtained. But other adaptations must be made to the habit of the tree. Some varieties, as the Early Strawberry, are remarkable for their leading shoots; with others, like the Aromatic Carolina, form, almost naturally, a wide spreading head, requiring little pruning after coming into bearing.—*Farmer and Planter.*

[ TO BE CONTINUED. ]

**IMPORTANT TO GARDENERS.**—A gardener having occasion to newly paint the wood work in his green-house, determined to make a trial of the theory of absorption of heat by black color, with the view of promoting the maturity of his plants and shrubs by means of a greater quantity of caloric. In the preparation of the paint, he used coal tar—that is to say, tar produced by the distillation of coal in the manufacture of gas. This coal tar, besides the advantage of its color, offers considerable economy in painting, being one-eighth the price of the material generally used in mixing black paint. The painting here in question was executed before the setting in of winter. On the return of spring the gardener observed, with no less surprise than satisfaction, that the spiders and other insects, which had infested his green-house, had totally disappeared. He, moreover, remarked that a vine, trained on an espalier, which, for the space of two years, had been sensibly decaying, and which he had proposed to uproot, for the purpose of planting another in its place, had acquired such renewed health and vigor as to be capable of producing excellent table grapes. Having applied his new paint to the props, treillages and espaliers of all his sickly trees and shrubs, as well as those which, though all in bloom, were being devoured by insects, success again crowned his experiment. Catterpillars and snails disappeared, as the insects had vanished from the green-house. The fruits produced by the trees thus treated, have elicited the approval and eulogy of purchasers. Similar experiments tried on the Gironde have, it is said, been attended with similar results.

### PROPAGATION OF THE BLACKBERRY.

A CORRESPONDENT of the *Country Gentleman* gives a valuable hint in regard to the propagation of the blackberry, which may be found interesting to those who may have the plants to operate upon. He says:

“As the cultivation of the blackberry is deservedly attracting a considerable share of public attention, the rapid multiplication of good varieties becomes important, to secure a supply at reasonable prices; and having had a little piece of experience in propagating the Lawton blackberry the past summer, which has been pleasing to me from its simplicity, ease, and rapidity, I wish to give it you for the benefit of such readers of the *Country Gentleman* as are as ignorant as I was on the subject, if there are any such.

Having occasion to take up a block of plants, I thoroughly worked the ground over and secured all the roots I could, which were cut into pieces of from three to six inches in length. These we bound in bundles of from three hundred to five hundred, and buried in sand in the cellar, where they remained until quite late in the season—probably about the 20th of May, when we took them out for planting, and were agreeably surprised to find shoots starting on nearly every root. We dropped these so as to lie horizontally in broad drills, opened with a hoe, the same as for apple or pear seed, in rich, mellow, well prepared soil, and covered about two inches deep.

In two or three weeks the plants began to make their appearance—feeble at first, but gathering strength with their growth by sending out numerous side branches, until now (Oct. 1st) many of them are of good size for setting out, and still growing very fast.

This method of propagation is quite likely familiar to many; but not having noticed it in print, I have remained in ignorance on the subject, although I have suspected for some time that particular persons were increasing their stocks in the same way, more rapidly than by suckers.

From what I have observed of the manner of growth of the blackberry plant, I conclude that good sized roots, cut up and treated as above, are about as certain to grow, if used with care in regard to exposure to sun, wind and frost, as potatoes, or quack grass even.



TIME OF PICKING APPLES.—A writer in the *New York Tribune* tells us that G. W. Browning, of Luzerne county, Pa., some years since accidentally discovered that winter apples, picked some five or six weeks before the usual time of gathering, would keep sound some months longer than those allowed to ripen on the trees. Since that time he has picked his apples early, and reserved them for the spring and summer market, thus obtaining much higher prices than if sold in the fall or winter. Whether any effect upon the flavor and quality of the fruit was observable, is not stated.

## LAWTON BLACKBERRY.

*Editor Culturist*:—As this plant is attracting considerable attention just now, I thought my experience in its cultivation might interest some of your numerous readers. The marvellous stories of its wonderful productiveness in the Atlantic states, led me to think it might succeed as well here. Having a favorable opportunity, I determined to try the experiment, and accordingly purchased five hundred plants of Mr. George Seymour, in South Norwalk, Ct.

My plants were taken up and packed in January. I was intending to leave early in February, 1858, but did not till March 20th, and arrived at my place about the middle of April. In consequence of their being delayed at Folsom nearly a week, we did not get the plants into the ground till near the first of May. The ground on which they were to be placed had previously received a pretty thorough application of manure—it was also well pulverized. As it was evident that the dry season was about to commence, I determined to give the plants a good start, and had the holes about half filled with earth after the plants were set, and then turned in water till the ground around and below was thoroughly saturated.

During the summer, the ground was irrigated, and loosened with the hoe and cultivator, as circumstances seemed to require. We did not get a large growth the first season. In the winter we cut away about one-third of the growth of the previous season. Early in the spring they began to send up large plants from the roots around, sometimes as many as ten or fifteen. These grew very rapidly. When they had attained the height of five feet or more, the top was cut off; soon they sent out side branches on every side, four and five feet long, and sometimes more. We watched their progress with great interest, looking for every indication of fruit. The wood, grown one season, bears fruit the next. Soon, from every leaf stem a cluster of beautiful white blossoms appeared. The fruit came on apace. Ordinary clusters contained from eight to twelve large berries. The fruit, when fully ripe, is soft, juicy, sweet and most delicious. The seed cells are large and full; the pulp tender, and the entire berry, as soon as it touches the lips, is esteemed equal to the fabled nectar of the gods.

M. S. R.

DIAMOND SPRINGS, El Dorado County.

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**TOMATO WINE.**—Now that tomatoes are more abundant than they have been known to be in former years, the following recipe for making from them a wine, said to be equal to Heidsieck, will be read by everybody: Take small, ripe tomatoes, pick off the stems, put them into a tub, wash them clean, and then strain them through a linen bag. (One bushel will make five gallons of pure wine). Add two and a half to three pounds of loaf sugar to each gallon, then put into a cask and ferment, and fine as raspberry wine. If two gallons of water be added to the five gallons of juice it will still make a very nice wine. Brown sugar may be used instead of loaf, but the wine is much more sparkling when loaf sugar is used. The United States might export wine by the ship load. It is said to be a delightful beverage—equal to Heidsieck.



### MANAGEMENT AND FOOD OF BEES.

*Messrs Editors:*—I wish to have it distinctly understood that the new comb system proposes to perpetuate a colony of bees for a thousand years, simply by proper management. Why not? If the hive is kept constantly full of young healthy bees, where is the danger of their becoming extinct? It might be said, with as much propriety, that any other race of insects or animals would cease to be, as it is to say that a colony of bees will die out—for they all live, increase, and die on the same principle. Not only so, but bees are also subject to that universal law of nature, improvement in breeding, when allowed to cross, and depreciation in size, in strength of muscle, and in power of vital organs, when forced to breed in and in.

There are no seeds of the same species that will not mix when raised in close proximity. Neither are there any races of insects or animals that will not mix with others of the same species when allowed to. Bees, too, are governed by that instinctive principle so universal in nature, self-defense, when their person or property is in jeopardy from an enemy. You will see them flying about their hives, mingling and intermingling with others in all the beauty and harmony of their nature, without a single act occurring detrimental to the character of beedom. Great deference is shown to strangers. It is under these circumstances, and in this way the queen becomes impregnated. But let a stranger cross the threshold into another domicile, and he is instantly recognized as a robber, and is dealt with accordingly. Now, all that is necessary to secure the happy result above mentioned is :

1st. Prevent the colony from becoming debilitated, and predisposed to disease—from breeding in and in—by introducing into the apiary every year a colony of bees from a distance.

2d. Prevent them from becoming dwarfed, and actually diseased from the effects of the old comb, by changing them, and giving them new comb every spring.

3d. Prevent them from becoming reduced in numbers, so as to freeze, starve, or be robbed—from over-swarving, by giving them ample room for active operation.

5th. Give them proper food. I am aware that the casual observer will suppose that honey is all that is necessary ; but the facts are, they will do much better if they can have a change of food that is adapted to their natures.

Vegetable oil, such as flax seed, sun flower seed and other seeds of an oily nature, when mixed with water, so as to form a glutinous substance, serves to supply this want in a very agreeable manner. (I am happy to see this kind of food for bees mentioned by other authors.) Bees require water in hot weather as much as any other animal, and this mixture of flax seed and water, serves a double purpose—drink and oil. Nature has supplied them in some sections with this oily food, where the pine, the balsam and the fir trees abound. But where those trees do not grow, it should be furnished by man. Whether they use this merely as an article of food for present use or not, or store it in the honey cell for future consumption, I am not able to say ; but it seems to strengthen and enliven them, and an extra amount of honey is the result.

The great desideratum connected with this question is profit. Now, to show that the new comb system is not only as profitable, but is in fact fifty per cent. more profitable than the old comb system, will compare notes. Suppose, in wintering twenty stocks of bees, four die, and the experience of hundreds warrants this supposition. Those four stocks of bees, under my system of management, would be worth twenty dollars, and would throw out one colony each, worth in all twenty dollars. Then, in changing the four stocks into empty hives, I will take forty pounds of fine white honey from each, worth forty dollars. I will take twenty-five pounds of surplus honey from each of the eight colonies, worth fifty dollars. This makes, in all, one hundred and thirty dollars profit. This statement is within bounds and will bear thorough investigation. The working of the two systems may be figured up in any way possible, and the result will be a considerable sum in favor of the "new comb" system. But, says one, "why will not the old manner of driving bees, and transferring the brood comb into the hive, by means of thread or cords, do just as well?" The reasons are numerous.

1st. Many of the brood bees are lost.

2d. All the young bees are lost, and the old bees will cluster in another part of the hive, and commence making comb there, and only use the old comb when obliged to for want of room. Consequently the young bees are left to the care of a few brood bees, who have been nearly frightened to death by the thumping on the hive. These last may be seen buzzing about, wonderfully irritated, trying to do something in defense of their young. Thus the brood comb is suffered to get so cold that the few brood bees can never get up the temperature sufficiently to hatch a young bee, or uncap a cell.

3d. The queen is deceived, and loses about three weeks of her time in working about the old comb instead of the new, and at a time when she is most busy in depositing her eggs.

4th. The final result is the death of the whole colony the first season. I do not speak at random on this subject. Seven stocks of bees have died here the past winter to my knowledge. I have observed them closely, and know that the workers will avoid the old comb as long as possible. S. W. Smith of this place, became satisfied on this point, by observing the course pursued by his bees, and relieved them of a pest by taking from the hive the old brood comb that had been suspended by a thread for several weeks. But I believe this method of driving bees is only resorted to in extreme cases, and is not advocated as any part of a system for practical purposes.

—J. D. SMITH, in *Country Gentleman*.

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**CURE FOR SELF-SUCKING COWS.**—A Steuben Co. correspondent of the *Genesee Farmer*, says that he cured a three year old heifer of sucking herself by smearing the teats, night and morning, with soft grease, and then dusting them thoroughly with pulverized cayenne pepper.



### WINTER IRRIGATION.

**I**N our November number of the present volume, we introduced to our readers the subject of winter irrigation, recommending its adoption, as far as practicable, as a means of securing a vegetable growth, attainable by no other process. We acknowledged our indebtedness, at the time, for the principles advanced and effects to be secured by its adoption, to the proper source; and, though not a few in their eagerness to decry irrigation as "worse than useless," met the subject with their only argument—an attempt at ridicule—they now, in the short space of two months, are inclining to the opinion that there may possibly be something more in irrigation, after all than had ever been "dreamt of in their philosophy."

We now find the subject of winter irrigation engaging the attention of many, and not a few are willing to be known amongst those the first to introduce this important feature of a highly successful California agriculture. That proper credit may inure to the person the first to suggest its importance, and put it into practice, we copy from a then current publication of the day, an article from the pen of J. M. Horner, Esq., Mission San Jose, Sept. 26th, 1856. If any of the present advocates of the practice can go back of this record, we shall be ready cheerfully to award them the full meed of praise due for so valuable a suggestion and discovery.

EX MISSION DE SAN JOSE, Sept. 26th, 1856.

*Sir:*—I have worked out some experiments the present season upon Winter Irrigation.\* The results have been so satisfactory, and its working so consistent with nature and reason, that I am almost ashamed to acknowledge its never entering my head before. Believing the subject to be of great importance, and that some of your readers may be as unthinking as myself, and knowing also that some of them reside in dry countries, I look upon it as a duty I owe them, to make known my experience, together with some arguments which may be urged upon the subject.

You are aware that many in this region predicted a large quantity of rain last winter. I was faithless; believing that there was a probability of their being mistaken. And, knowing that most of my land would not produce a paying crop without more water than fell the previous winter, also, that we were more liable to suffer in California from a scanty supply of water, than from a superabundance, I concluded to irrigate; and commenced in December, 1855, to irrigate lands I wished to crop in 1856. I thoroughly wet some eighty acres. The wheat on the lands thus wet was forty inches average high, containing seventy-two grains to the head, plump and good. The unirrigated was twenty-five inches average high, and containing twenty-four shrunken grains to the head. The same quantity of seed and the same amount of labor, with the exception of the irrigation, which cost twenty-five cents per acre, had been expended on one as the other. The vegetable land was cropped in 1855, some portions of which entirely failed, other portions were destroyed by a worm;

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\* Is Irrigation before the crops are in the ground.

the whole was decidedly a poor crop. This year the crop is good, and the worms have not injured it—while the unirrigated, adjoining lands, are quite overrun by them—and had this not been irrigated, the crop would scarcely have been worth gathering.

The long dry summers of California, extract or absorb all the moisture contained in uncultivated lands to the depth at least of ten feet. The earth is a reservoir which nature fills and empties, at least once a year, in a perfect or imperfect manner. If imperfectly filled by nature, man should make up the deficiency, as far as he wishes to cultivate. His garden and orchard should be particularly attended to. Ten feet of dry earth will swallow up one-third of its bulk of water; hence if a man be possessed of ten acres of land, he has at the end of the dry season, a reservoir ten acres in extent and three and a third feet deep, upon which it will be impossible to cultivate any crop, until the reservoir is at least partially filled with water. If imperfectly filled, your crops will be more or less imperfect. If perfectly filled, you can raise a better crop, with less labor, than you could by expending thousands of dollars to construct a reservoir of sufficient capacity to contain the amount of water desired, and apply it as your judgment dictated after the crop was planted. And for the reason that the first is applied to the roots of the plants upon perfectly natural principles, they receiving nourishment regularly and constantly, causing a perfect, firm, healthy growth and maturity; while the latter is altogether artificial and irregular in its application, frequently stunting—which unavoidably happens where water is scarce—and then stimulates an unnatural growth and maturity, causing premature decay, as frequently happens with potatoes, onions, cabbage, etc.

Some of the benefits arising from winter irrigation, may thus be summed up:

1st. You are sure of getting your lands wet, rain or no rain.

2d. You can water your lands before planting with one-fourth the labor that you would have to spend in watering after planting.

3d. The water will remain long enough in the soil to dissolve the gasses, converting them into food for the plants, and drive worms and bugs to the surface, where they will be destroyed by the birds and fowls, also causing the larva and eggs of those insects to perish, thus comparatively freeing your soils from those troublesome creatures, and allowing you to put your lands in perfect order, in which they will remain until the crop matures.

It is the habit of too many, so soon as their crop is taken off, to raise their gates, stop their windmills and pumps, take away their dams, and otherwise labor to prevent their lands from getting wet; allowing all the water, however rich it may be, to pass by unappropriated, and their lands suffer for food; then ungratefully ask God to send rains and fruitful seasons, and remove the barrenness of the soil. Some are living near wet weather streams, that contain water six months of the year and then become dry; such should be like the miner, make use of it while it is to be had, and fill *nature's reservoir*, so that your trees, shrubs, plants and crops, may flourish during the approaching dry weather, when, if this course was not pursued, they would become withered, stunted and, perhaps, killed, before it would be in your power to afford them any relief.

Some will run out during a shower, to prevent a small stream that may have concentrated in a path or road, from entering their garden, or grounds, that may be so parched, and the vegetation that grows thereon so starved, that it was an eye-sore to its owner, instead of a pleasure. Such should pause, and consider the amount of vegetable food contained in water collected from the surface of the ground; also, that all sweet water, however pure, contains the same, though in a less degree, and imparts it to the soil it passes through. For one to know that his lands are wet fifteen inches deep at the time of planting, calculating to keep it so wet while the crop is growing, and then expect to reap an abundant harvest, is unreasonable; for all cultivators know, that most kinds of vegetation root much deeper, *if they can*. Grass roots have been traced in our neighboring wells twenty feet in depth. Neither ought it to be sufficient for one to know his orchard lands are wet thirty inches in depth at the close of the rainy season, nor that he can give the trees a slight wetting during the growing season. Nothing short of a thorough soaking, once in twelve months, and keeping the land in good tilth, is sufficient; and that ought to be done early in spring, in the winter, or late in the fall, at which time nature will do it if she do it at all.

I do not wish to be understood in this communication as discarding summer irrigation; but leave that to be argued by abler hands.

Respectfully,

JOHN M. HORNER.

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### LIME AND SALT FOR WHEAT.

WE make the following extracts from the discussions at the annual meeting of the Cheadle Farmers' Club, Staffordshire, England: Mr. Cargey said he had been in the habit of dressing land that was to be sown with wheat in autumn, with a manure made of a ton of lime to a half a ton of salt, well mixed together some weeks before it was used. Lord Harrowby had sent him the recipe down from London, and it had been applied to summer fallow for a long period with invariable success. Whenever he was afraid of a crop of wheat going down, he always applied a dressing of lime and salt, and the same dressing had always secured a good crop of clover. Generally plowed the land and then applied the manure to the surface. The lime and salt should be mixed some time before they are used, for the more completely they were amalgamated the better. The wheat was sown broadcast in autumn, and produced, according to the Staffordshire measure, sixteen bags per acre, and there was not one bit of it that was lodged, nor did the lime and salt make the land stiff, as some persons had predicted. He had never dissolved the salt but once. They generally laid a load of lime down and then shoveled the salt upon it and turned it over. If the weather was dry they put water upon it; but if not they let the rain fall upon it, and turned it over three or four times. He did not know that any chemical change was thereby produced, but the lime and salt were well amalgamated. He had found this plan invariably a preventive of the great

plague of falling wheat. When he first went to Sandon he was troubled a great deal with falling wheat, but now he never has any.

Mr. Knight had applied lime and salt on his light land, and found them to answer. The Vice-Chairman said he had done the same on his farm, and had found it succeeded admirably. He had also found that it saved the clover from the attacks of the slug. In wheat, it strengthened the straw, and thus prevented it from going down. If to one part of the field the lime and salt were applied and not to the other, it would be found that the straw, in that part of the field to which they had been applied, would be of a brighter and better color than that which grew where they had not been applied. He had applied them in the same proportion as Mr. Cargey.

Mr Cargey said he had recommended the application to many of his neighbors, but they were afraid to use the same quantity of salt as he had done, so that they had not tried the experiment in its integrity. He had seen wheat mildew both on land to which the lime and salt had been applied, and on land to which it had not been applied. In the latter case the wheat had suffered permanently, but in the former it had ripened off as bright as possible. Many of his neighbors had used four or five hundred weight of salt, but he had never known the proportion he had named make the land stiffer.—*Country Gentleman.*

### SPONGIOLES OR SPONGELETS.

*Editor Culturist:*—I have noticed that writers for the *Culturist* and other agricultural journals, are in the habit of using the words *spongioles* and *spongelets*. Now, sir, I suppose they have something to do, or have some connection with roots; but will you tell me how they differ from the small fibrous roots of a tree or plant, and whether they have any office to perform apart from that which pertains to fibrous roots? What about the success of the sorghum, or Chinese sugar cane in the Atlantic states the past season? B.

We let others use the words *spongioles* and *spongelets* as applicable to the small fibrous roots of trees or plants, whilst we prefer to call them roots. We consider a limb of a tree to be a limb to its utmost extremity, and the same of roots; they are but roots to their extreme ends. In relation to the success of the sorghum the past season, in the Atlantic states, it is hardly time yet to know what the result has been. The *Prairie Farmer*, of Chicago, Ill. of date Nov. 10th, says:

“From every quarter we have most satisfactory reports of the sweet experiments of the current year. There is being a great deal more cane manufactured this year, in the West, than appears on the surface of things. We have noticed this plant has been classed in the lucubrations of some of our wise cotemporaries among “other humbugs.” But we fear they have spoken too soon; that the quiet which has prevailed relative to this crop and its value has been that of investigation. Already we

hear notes of gratulation. We hope and believe they will prove significant of the general success and established value of this plant as a crop in the West."

The *Iowa Farmer* says: "It will be seen by the census and statistical table, that the above has become an important item in our list of productions. Our friend Beckman showed us some from the farm of Mr. Beckman, of Dallas county, which is certainly very little inferior to strained honey. We learn that Mr. B. made some five hundred gallons, and that there are others who have made about the same amount. A large number of our farmers have made from fifty to one hundred gallons each. The article is selling in this market at fifty cents per gallon. Our farmers have done well in testing the value of the sorghum plant. Too much praise cannot be accorded to them; for with wet weather last year, and early frosts this season, much of the cane has been injured. They have, however, persevered, and the result is that one cash item of our imports bids fair to be extinguished.

To those who have not visited the country until quite lately, it has been a matter of some surprise to find this plant so generally cultivated as it has been this season. On almost every farm in this neighborhood can be found a 'patch,' varying from one-half to two acres in extent, and at the time we write, the music of the rollers can be heard in all directions. But few patches exceed an acre in size—some containing exactly that quantity, measured purposely for experiments as to its yield, profit, etc. As the early frost this season, nipped a portion of that planted on the low bottom lands, the yield will vary from fifty to two hundred gallons per acre. In one case, near Rising Sun, we notice a yield of one hundred gallons from half an acre; but the sirup evidently needed more boiling down. All the sirup we have so far seen, looks well—is pleasant to the taste, and healthful, though some, we think, is too thin to keep well. This season will no doubt fully prove to the minds of Iowa farmers, the usefulness and value of the plant. No efforts should be spared in arriving at the best and most economical manner of manufacturing it. Sorghum planters, *let us hear from you all* as soon as results are actually obtained.

[California possesses probably the finest climate in the world for the successful culture of the sorghum; the season being of sufficient length to perfect its ripening, whilst the heat and dryness of the atmosphere are exceedingly favorable to the fullest development of the saccharine principle. We believe if more attention was given to its culture, than yet has been by the farmers of our state possessing suitable soils, we would not now hear so much bitter complaint of the unremunerative value of the husbandman's crops. ED. CUL.]

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A NEW ENGLISH STRAWBERRY.—The British Pomological Society has awarded a premium to a new variety of seedling strawberry, named the Oscar. It is designated as having very large fruit, ovate, angular and frequently cristate; seed large and deeply imbedded; color very dark, becoming a deep mulberry when fully matured. The flesh is very firm, solid and juicy.

## ART, SCIENCE AND INVENTIONS.

**IMPROVEMENT IN TELEGRAPHING.**—The *New York Times* of November 15th, contains the following notice of an improvement in telegraphing, the invention of Dr. L. Bradley, of California. Before the departure of Dr. Bradley for the East, we had the pleasure of witnessing the operation of his new invention, in the rough, and was satisfied that it was all he claimed for it. We are pleased to see that success has attended the perfection of his apparatus with moveable type, by which the transmission of intelligence by telegraph is immensely facilitated.

The *Times* says: "We have had the satisfaction of examining, at the Tammany hotel, an exceedingly ingenious apparatus, designed by Dr. Bradley, for the greatest improvement in telegraph recording. So fully does Mr. Raymond, of the *Times*, for himself, explain the impressions left upon us by the system invented by Dr. Bradley, that we can best express ourselves and serve the inventor by adopting the description and language of the *Times*:

'We had an opportunity of examining, yesterday, an invention which can scarcely fail to prove of great importance in transmitting messages by telegraph. At present, as every one is aware, a message can only be sent as rapidly as one operator can spell the words and record them, letter by letter, in the characters used. If the rate of transmission is to be increased, it must be by multiplying the number of wires, of instruments and of operators. One can only transmit messages as rapidly as one person can write. The invention to which we refer consists in applying the operation of printing to the process of transmission. The message is first put in type—the letters being substantially the same as those now used. These types are placed in very simple metal cases—each being about a foot in length. These cases are then placed upon the instrument in such a way that, on being carried forward by a revolving band, the projecting points of the type strike a metallic plate and complete the electrical circuit, precisely as the same result is effected in the ordinary method, by the touch of the operator's finger, and the letters are recorded with corresponding rapidity at the other end. The machine makes very nearly the same change in telegraphing which the invention of printing made in the multiplication of manuscripts. At present a message of ten thousand words over a given line, can only be transmitted as fast as one person can record the successive letters. By the use of this instrument a hundred persons can first put it in type, and then the whole can be transmitted in less than an hour. It thus multiplies the power of the telegraph immensely, and this of itself will tend very greatly to increase the amount of business which will be transacted through its agency. The process of setting the type is very simple and easily learned, and requires much less skill than the ordinary kind of type-setting. The invention seems to us one of special importance, and calculated to effect a complete revolution in the business of telegraphing.'

The *Life Illustrated* says: "A patent has recently been issued to Dr. L. Bradley, of California, for a new telegraph apparatus, which he claims as an improvement on those used by other telegraphers. This improvement is effected by means of



setting the messages to be telegraphed, in type made for the purpose, on the face of which, instead of letters, are prints and dashes in the form of teeth, of varied width, which, acting on a circuit, transmit the communication to the receiving instrument at any other point or points along the line. The record is made in parallel lines of zig-zag form, the irregularities of which correspond with the teeth of the type used in the message, and represent the common Morse alphabet. The lines are on sheets of paper placed round a cylinder, along which a carriage bearing the electro-magnet and pen-holder is moved by means of a spiral thread on the cylinder, acting in a moveable rack on the cylinder. The action of the pen may be stopped, and the carriage left stationary, should the operator wish to read by sound or transmit alone, merely by moving back this rack. The pen is a hollow silver wire in the form of a syphon, through which the ink is drawn from a fountain fixed on the carriage. It is stated that, on the line between this city and Sandy Hook, and on lines in California, transmission at the rate of from eight to twelve thousand words per hour was attained; while the quickest system heretofore employed, had never exceeded two thousand five hundred words per hour. While transmitting at this rapid rate, Dr. Bradley's instrument is capable, by simple connections, of recording on any number of cylinders at the same time, thus obviating the necessity of manfolding for the use of the press."

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**SEWING MACHINE AWARDS BY THE AMERICAN INSTITUTE, NEW YORK.**—The committee of the American Institute, New York, appointed at the late exhibition at Palace Garden, to examine sewing machines, have made a long, elaborate, and able report, of much interest to the public. Although the utility of this invention is established beyond all question, yet, for the various purposes of its application, ignorance exists as to the particular patent best for a specific purpose. Committees heretofore have not discriminated and classified sufficiently. This report is free from these faults. The machines are arranged according to the stitch made, and the purpose to which the machine is to be applied, in four classes, first, second, third and fourth; a classification indicating the general order of merit and importance:

Class first, includes the shuttle or lock stitch machines for family use, and for manufacturers in the same range of purpose and material. The committee has assigned this class the highest rank, on account of the "elasticity, permanence, beauty, and general desirableness of the stitching when done," and the wide range of its application. At the head of this class they place the Wheeler & Wilson machine, and awarded it the highest premium. This has been the uniform award for this machine throughout the country for several years.

Class second, includes the shuttle or lock stitch machines for heavy manufacturing purposes. At the head of this class the committee decided to place First & Frost's machines.

Class third, includes the double chain stitch machines. The Grover & Baker machine is placed at the head of this class.

Class fourth, includes the single thread tambour or chain stitch machines. The

tendency of this stitch to ravel, the committee considers an objection so serious that they refuse to recommend the machines making it for any premium.

The public is much indebted to this committee for the able discharge of their duty, in rendering clear a subject that interest has so much darkened.—*Life Illustrated*.

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**THE NEW FRENCH WHEELBARROW.**—The new wheelbarrow, which is worked by the men employed to repair the damages occasioned by the *fetes* in the gardens of the Tuileries, is attracting much attention. The novelty of the machine consists in the two legs of the barrow being replaced by two wheels, smaller than the one in front, and which are fixed immediately under the body of the barrow. The handles are raised so as to be on a level with the hands of the workman; and thus upon a level road a slight push is all that is necessary for the transport of the heaviest load. The three wheels being almost close together, the act of turning the barrow in the smallest space becomes as easy as possible. The workman has but to lean upon one of the handles, and the front wheel is lifted from the ground, leaving the barrow free to be maneuvered like a common handcart.

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A Frenchman has invented what is called a barotrope, a sort of human locomotive, by which a man sits on wheels and walks himself along. It is evident that each step will carry a man several yards on an instrument of this kind, and a speed of 2.40 might be obtained without any great exertion. Two men with it made five miles in thirty-five minutes on the Boulevard Bazar of Paris, at noon, when the street was most crowded. At another time the same men made thirteen miles in ninety-six minutes; the exercises being so easy that they offered to keep it up alternate hours, day after day, and thought they could without difficulty average fifty or sixty miles a day. A singular thing about it is, that it beats the best turn-outs on steep grades, if they present a compact or paved surface.

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**STRAIGHTENING A CHIMNEY.**—Quite an interesting operation was successfully completed lately in Port Dundas, Scotland, for the restoration of a chimney which had settled out of the perpendicular. This was accomplished by sawing several of the mortar beds between the course on the side from which the chimney leaned, thereby allowing it to come back by its own weight, without the application of any external force. Only one draft was cut at a time, to guard against any shock which might have endangered the stability of the building, and by keeping the saws wet, a bed of mortar was prepared for the superincumbent weight to settle down upon. Twelve cuts were made in this manner on different parts of the structure, which generally set before the saws had passed through half of the circumference, particularly in those made nearest the ground, where the weight was greatest. The principal dimensions of the chimney are: Total height, four hundred and sixty-eight feet; from surface to top of cope, four hundred and fifty four feet; outside diameter at foundation, fifty feet; at surface, thirty-four feet; at cope, fourteen feet.



### ROOT PRUNING.

*Editor Culturist*:—During the controversy that has been carried on, and somewhat warmly, between yourself and the editor of the *California Farmer*, in relation to the roots of trees and that portion of the soil they should occupy, and which seems to have resulted in this: that whilst you are the advocate of deeply preparing the soil and allowing the roots of trees, if they will, to run down to the bottom of it, *he* is in favor of surface roots and surface cultivation, a frequent allusion to “root pruning” has been made by your opponent, without so much as once enlightening his readers as to the *modus operandi* of its performance. Now, sir, if there is anything in root pruning worth knowing, or if the practice is worthy of adoption, will you please enlighten an amateur on the subject. YUBA.

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Root pruning is, in some cases, resorted to for the purpose of checking a too luxuriant growth in a tree, and by so doing, favor the formation of fruit buds the following season. That it will produce this effect is, to some extent, true; but we ought to look well to the consequences of such treatment before we too hastily adopt it. The tendency of root pruning to induce fruitfulness, is based simply upon this principle in vegetable physiology: that wherever a tree, from injury received or other cause, is about to end its career of life, or, to use a familiar phrase, feels its end approaching, nature always makes a strong and determined effort to perpetuate its kind. The same rule also, to a very great extent, holds good with the animal creation. Animals, in sickness, with progeny are almost invariably sustained till their offspring are produced alive, then rapidly decline.

The fruitfulness induced by root pruning, is then simply based upon the injury the tree has sustained in its otherwise natural vigor and health, by the process. The tree has been deprived of its accustomed nutriment by the loss of its roots, and before it shall have been deprived of all life by a repetition of the process, exerts itself to perpetuate its species as soon as it can. The time in which it is able to do this, must depend upon the season in which the injury is received and its extent.

If you would only half kill a tree while inducing its fruitfulness by this process, of course you would take off only half the roots you would, if your object was to kill it outright. That a judicious pruning, or one just exactly right to secure fruitfulness without serious injury to the vigor of the tree may be practiced in some cases may be true; but the difficulty of arriving at the right of the thing renders the practice exceedingly hazardous. Quite unlike the pruning of the limbs, it is impossible to know, in detaching a single large root, what proportion it bears to the whole—it may be one-fourth of all the tree possesses, or only an eighth or a sixteenth; and yet a single large root upon one side of a tree, may be a full half of all its really nutritional roots.

Hence arises the great difficulty of its practice. Could we see all the roots of a tree at a glance as we do its limbs, then might we better judge of the proportion it

would be well to detach. The whole system—if system it has—relies more upon theory than actual practice, and should never be attempted without a more thorough acquaintance with the proportion that the top and roots of a tree bear towards each other, than is possessed by the generality of tree-growers. With all that our cotemporary has said in its favor, we are not aware of a single orchardist in California adopting its practice.

We know of individual cases in which it has been tried, and we instance, during the past season, a single tree in the garden of E. B. Crocker, Esq., Sacramento, the effect of which was, we think, to nearly ruin the tree, and deter the proprietor from further experiment in that line at present. There is a far better mode of inducing fruitfulness in trees, than by the destruction of their roots; but, if it must be done by this method, then the proper time is in autumn; dig down and cut off till you are satisfied—for no possible rule can be given. If we were to say one-fourth of all, how can it be known unless you can see them all? We would recommend, from our own experience in orchard culture for more than twenty-five years, to let the roots of the trees remain on, and let the cutting be done to the limbs, as answering every purpose that can possibly be effected by root pruning.

The objection to root pruning in the spring or early summer is, that all large roots severed at that time, or during a vigorous flow of sap, will bleed from the root, forming gangrene at the end, which poisons the otherwise healthy flow of sap towards the trunk and limbs. There is a method sometimes adopted for increasing the vigor of old or stunted trees, that is attended with good effect; and, though it consists in part of destroying a portion of the outer roots of a tree, it is very different in its results from root pruning, being just the opposite, or inducing a vigorous growth of wood instead of fruit.

It consists in digging a trench around the tree at a distance from the trunk, depending upon the age, size and natural vigor of the tree, removing the soil and all the roots by a clean cutting spade and refilling the trench with new soil or rich compost, adapted to the nature of the tree; the new roots emitted and penetrating this highly enriched soil, soon impart a new and greatly increased vigor to the growth of the tree. And, though a cotemporary has in more than one instance confounded this practice with that of root pruning, their effects upon the tree are exactly dissimilar. This mode of reinstating the vigor of fruit trees can hardly be supposed to be required as yet in California, as but few fruit trees have attained to that age that has, to any very great extent, exhausted the soil in reach of their roots. We are aware that Downing places both processes under the same head; but our own experience has repeatedly demonstrated their effects to be wholly dissimilar. Were we desirous of promoting a renewed and vigorous growth of wood and foliage, we would adopt the trench expedient; but to induce fruitfulness at the expense of vigor, root prune, without the application of manure or compost; though our own experience leads us to question the general applicability of the process, without great caution. Trees will generally be found to suffer less from a superabundance of roots, in proportion to top, than from a deficiency. We are not, therefore, the advocate of root

pruning in a California soil, until trees shall be more inclined to produce wood, at the expense of the fruit crop, than has ever yet been manifest ; as the contrary prevails almost everywhere. In no country in the world do young trees bear earlier, or more abundantly than here.

## IMPORTANT MINING DECISION.

### HORTICULTURE AMONG THE MINES.

THE *Tuolumne Courier* of December 17th, says: A recent decision of Judge Hardy, of the District Court of Calaveras county, the case came before the court on demurrer filed by plaintiff to the answer of defendants. The suit was brought to recover damages for a trespass by defendants, who are charged with having entered the close of plaintiff and committed waste therein. The answer admits the intrusion, but the defendants allege that they are miners, and entered the plaintiffs premises for the purpose of mining ; averring that the inclosure contains mines of gold, and that the plaintiff holds the same for gardening purposes. Before defendants entered they complied with the act of the legislature, entitled "an act to protect the owners of growing crops, buildings and other improvements, in the mining districts of this state," passed April 25th, 1855. The question now presented involves the constitutionality of that act as well as all other laws which expressly or by implication, recognize the rights of miners to invade the premises of parties holding lands for agricultural or gardening purposes. We extract for our readers the important points which came up on this trial, and state the whole substance of the decision as briefly, as clearly, and as free from the technicalities of the profession as possible.

"The first question which presents itself in the consideration of this case is whether the mines of precious metals belong to the state by virtue of her sovereignty or the owners of the soil in which these mines may be found. It has been claimed by many of the profession, and the claim has been supported with much ability, that the gold mines of the country belong to the United States, and that Congress alone possesses the power to prescribe rules effecting them. This argument, however, is based on an erroneous idea as to the nature of the United States Government, and the character in which the government holds title to property. If the United States own the mines of precious metals, it is by virtue of their ownership of the soil, and depends upon the same rules which governs in the cases of private proprietorship. The government of the United States owns no property of any character, except such as has been acquired in the same manner, and by the same means, as private persons acquire property. That government is a public corporation, endowed, it is true, by grant with some of the attributes of sovereignty, but is a fact worthy of note, that in every case where a power has been granted which resembles a sovereign power, it is for the purpose of intercourse of dealings, whether of diplomacy or hostility, with foreign nations.

It has been repeatedly decided, by the courts in England, that the mines of gold

and silver within the realm, whether found on the land of private owners or of the Crown, belonged to the Crown. Many reasons have been urged in support of this claim of the sovereign, but few of which are applicable to a Republican Government. The custom in England of condemning mines was confined to wastrel lands, and in the case cited of *Rogers vs. Brenton*, the court expressly held that, if by enclosure "the owner of the land may seem to have devoted the land to other important purposes inconsistent with mining operations, such as agriculture or building, the miner cannot enter it." And the observance of that rule will not close up the mines of California. The existence and maintenance of agricultural and horticultural interests together, with the mining interests, will rather tend to the advancement and prosperity of all. Nor is there any danger complained of by some, that this course will place the mines in the hands of private speculators. When it is recollected that the land—to prevent the miner's entry must absolutely be devoted to other important purposes—it will be seen that this will never be unless the owner of the soil *bona fide* considers it more valuable for other purposes than mining, as he would otherwise invest his capital in the growing of fruit trees, raising crops or building houses; nor are buildings, gardens, orchards or barley fields likely to be so extensive as to interfere with, much less cripple, the mining interests of the state.

Plaintiff alleges that he is the owner, in actual possession, and has fruit trees growing on two acres of ground. The answer admits that he is the owner of one-half of the piece of ground described. The act of 1842 is in derogation of the common law, and must be extended by implication. The case of *McClintock vs. Brydon*, 5 Cal. 97, and others cited by the defendant's counsel, are all cases arising under that statute, and in those decisions the view expressed by the Supreme Court: "That the license should not be extended to cases not arising under the act." If, then, this is not a case arising under the act, the right of the defendants to enter must depend upon some other statute or rule of law; and I know of none which would authorize it. In fact, the existence of such an authority would be a monstrosity; a party in the quiet and undisputed actual occupancy of a garden spot on which he is rearing fruit trees, vines and other valuable products, to be despoiled of his possession and the valuable trees and vines he may have growing simply because the trespasser comes in the attitude of a miner, would be a discrimination between the branches of industry which no court should ever make, unless in obedience to a positive law, constitutionally enacted by the law-making power. Under our constitution, every man is guaranteed the right to acquire, possess and protect his property, and the pursuit of safety and happiness, and he shall not be deprived of his property without due process of law. The plaintiff's possession of his garden is property; his trees and his vines are his property, and no man can lawfully despoil him of them. His case is different from the constructive possession, which the act of 1852 gives; in that case his possession hinges and is dependent upon the right of the miner. In this case the plaintiff does not invoke the aid of the statute, either to extend or confer his possession. He has acquired his property according to the ordinary mode, and claims for it the protection of the law. From the foregoing views it

will be seen that the demurrer must be sustained; and as the question is of the last importance, I will concisely state the points decided.

1st. That the mines of precious metals of this state are the property of the owner of the soil, whether the owner be the state, the United States, or an individual.

2d. That the Legislature of the state, by virtue of the states sovereignty, may authorize any person to invade the wastrel lands of others, and dig for gold, rendering compensation, to be ascertained by jury, to the owner. By waste lands I mean any lands not absolutely devoted to other useful and important purposes.

3d. That the Legislature can, by virtue of the state's eminent domain, authorize the entry upon any lands belonging to the United States, on the terms and by the same rights that it may be done upon the lands of other private proprietors.

4th. That the Legislature has not yet provided by law for the condemnation of private property for mining purposes, and for the ascertainment of value and payment of compensation.

5th. That the acts of 1852 and 1855 concerning possessory action, and for the protection of owners of crops, etc., in the mining districts, do not authorize the invasion of an actual occupancy not held under the law of 1852. And,

6th. If the act of 1855 does confer such right, that it violates the constitution of the state in depriving a citizen of his property without due process of law or just compensation. The clerk will enter judgment sustaining the demurrer, and as I cannot see how the answer can be so amended as to make it a defense to the action, judgment will be entered for the plaintiff for costs of suit and for perpetual injunction restraining defendants. Their agent, servants, employés and successors, from further trespassing upon the enclosure of plaintiff, by digging, mining, or otherwise, within the enclosure.

#### ABOUT TULE LANDS.

*Editor Culturist:*—You request me to write relative to the reclamation and cultivation of tule lands. This is knowledge that is very much sought after, and by no one more than myself, for I can find but few that have done as yet any cultivation in the tules. All tule lands are, at certain seasons, overflowed lands; caused either by the flow of the tides, the rains of the valleys or the melting of the snows of the mountains. On examining tule land, it is found covered with patches of tall, rank tules in the lowest parts; then tule and grass where it is a little higher; and then, a grade higher it is all grass; the highest grade producing grass, peavine, clover, watermint and a variety of other plants. These four grades will enable any one to class the different varieties of tule lands.

The tussock [or bog. Ed.] is a large collection or stool of grass blades, so entwined and netted together as to make it nearly as firm as timber. The cause of the tussock is doubtless an effort of nature, causing the blades of grass to combine to raise them above their present wet situation, enabling them to grow, flourish and bloom where they would otherwise perish from dampness. There can be a very



beautiful moral drawn from the tussock, for it teaches us to improve our own situations—a very salutary lesson to indolent farmers. On tule lands there is generally a strip of timber along the water courses, if such there be, and immediately back of this strip of timber the tussock is found.

They are in hight from six inches to three feet, and in thickness from nine inches to one foot and a half, and generally occupying one-half the land they stand upon; and except the lesson they teach, and their formation as an object of curiosity to the naturalist, they are a very great nuisance, for stock of any kind cannot walk upon them, and it is soft and bad walking between them. The tussock, when cut off with the ax or tule knife, is very useful in damming or filling up water courses, where the action of the water would wash the soil or anything less compact.

The timber on most of these tule lands is mostly willow and alder, but where it is seldom overflowed you will find oak and sycamore. Among the tule timber is a variety of sweet flowering shrubs, known to be excellent as furnishing food for bees. On the west bank of the Sacramento, and all streams where the trade winds prevail, there is the least timber; this is owing to the tules being fired, and the fire driven by the west winds into the timber, consuming it.

The animals that take up their abode in the tules are the elk, beaver, otter, mink and raccoon; there is also an animal in size between the mouse and rat, with very destructive propensities in barking fruit trees, eating potatoes and other roots; this animal is the only horticultural pest we have to deal with. For their destruction, I have a number of cats that feed upon them, and without much trouble keep them well thinned out. Chickens and other poultry are safe at night only in coops from the mink and raccoon; the noble dog, however, affords additional protection.

I had almost forgotten to mention that the tules are teeming with a species of snake called the chicken or garter snake; it is striped with yellow and a dark brown, altogether beautiful and entirely harmless. It spends the greater part of its time in the water catching minnows, frogs and flies. I have often met it in the middle of the Sacramento river in its broadest places, and in the roughest weather, crossing to and fro. The length of the longest, about thirty inches.

The tides of the Sacramento river are an object of great interest to those who are settled on the tules. Fifteen miles above Suisun bay, or thereabouts, United States surveyors have given the rise and fall of the tides at four and a half feet; now the truth is, it sometimes falls six feet, at other times not more than three feet; it is very irregular and caused by the winds in connection with the moon. A strong north wind driving down the river into Suisun bay, whence it has a powerful sweep, will not only quickly empty a large quantity of water out of the river into the bay above named, but will keep the tide in check for a considerable time; this is one great cause for our lowest tides and their irregularity. The highest tides are also as easily accounted for.

To a traveler on the steamer, the tule lands look, to say the least, forbidding; they look to him entirely too low, and he would be perfectly correct in his observation if he were any where else than in California; but here it is entirely different, for the

Creator has fitted means to ends. On the great bottoms of the Mississippi, where an immense quantity of water is absorbed from rain and flood, the planter relies upon remunerative crops, even with all the drawbacks incident to his low situation, such as billious fevers, stock drowned and crops swept away; and yet it takes but a good start, and a few years finds him a prince in the pocket, rich and independent.

How stands the matter in California? Here our rains are much less abundant and inadequate to supply fully the uplands. The consequence is, there have been hundreds of farmers ruined, and it will not stop at thousands. [Unless a system of winter irrigation be adopted.—ED.] A farmer opening a farm in the states with means to do so, and possessing a character for energy and of temperate habits, is sure to grow rich on any kind of land he settles upon. A farmer in California with the same advantages, settling upon the uplands, the chances are five to one that he is poor in four years. Look into Yolo county, it is pitiful to see the poor fellows selling their last cow to enable them to buy seed wheat; I assert that for years past they have sold their stock to enable them to buy their seed, thinking that the *next* year will bring them good crops. But alas! until the present order of nature is reversed they will see but few good or paying crops.

Now if planters on the Mississippi and its tributaries, with their abundance of rain annually, go upon and plant the very lowest parts they can find, even though amongst contagion and death, how much more incumbent upon us in California to go upon our low situations, particularly when found almost as healthy as upon the Sierra Nevada mountains, and from their humidity much more pleasant in our generally dry, summer climate. No one should be deterred from settling upon tule lands for fear of floods, for though the entire tule country of the Sacramento should be flooded, as was the case to a very great extent in the winter of '52-3, it would always subside in time to raise one good crop the same year, which is not the case in the states, nor does it leave after it a long train of sickness and disease. These are the advantages that pertain to our California low land.

In my next, I shall endeavor to describe my tule farm, mode of reclamation and management, domestic animals, my prospects, etc.

Yours, &c.,

THOMAS CUBBINS.

#### INNOVATIONS—TEMPERATURE OF WATER FOR PLANTS.

NOW that a judicious watering of trees and plants is a fixity, despite the efforts and opinions of those who deem "irrigation worse than useless," and who are "death on innovations," it becomes a subject of importance to discuss the nature and conditions of the water to be used. We find among the recent discussions had before the Chicago Gardeners' Society the following, which we extract from the *Prairie Farmer*:

"The regular monthly meeting of the society was held at the *Prairie Farmer* office last Thursday evening. During the past few months these meetings have been

mainly given over to business, in connection with the National and other exhibitions in which the society has participated. This order of things was reversed at the last meeting, and these winter gatherings give promise of becoming useful and interesting. It is gratifying to note the influence these meetings have had upon the gardeners of the city. They begin to think! We find some of them innovating upon old practices and customs among gardeners. The old rules long ago established, and long practiced as fundamental, are proved to have exceptions. And we note, too, how firm a hold these practices and rules have upon gardeners. Some of them believe them unexceptional. Indeed this belief often extends to almost bigotry. But facts are stubborn things, and the man who is armed with a fact can defend an innovation manfully and successfully.

THE TEMPERATURE OF WATER FOR PLANTS was a subject brought before the meeting. Mr. Ure introduced it as one of some importance to the health of plants and the success of the gardener. Believed it was too frequently the case among most gardeners, that the temperature of the water used was unknown—that the gardener little realized the effect water of too low temperature would have. There is no doubt but warm spring showers have to do with the germination of seeds. Autumnal rains produce no such sudden and gratifying effects. Water should be tempered—should be made “temperate”—should never be applied to a plant when below sixty deg. temperature—better be higher than that. He fills tin vessels with water and places them on the flue, so that they are always ready to be emptied into the vessel from which he fills his syringe, and thus modifies its temperature.

It was asked if the temperature of the water should be raised to the temperature of the atmosphere in which the plants are growing.

Mr. Chambers thought it would not be judicious in a hot-house—might answer in a green-house. Believes if the tank is filled in the evening and remains until morning exposed to the atmosphere of the house, it will be safe to apply the water.

Mr. Williams has watered cucumbers with water as hot as ninety deg. without injury to the plant, but would not recommend it for plants as a rule. He regarded sixty deg. or seventy-five deg. about the right temperature. Other gardeners conceded this to be about the right practice, yet did not deny but they applied colder water sometimes.

Mr. Knight asked if it was essential pure water should be applied to the plant, or if water containing sediment and that had long been standing was better.

It was answered that the water used in syringing plants should be pure—should contain no sediment, but not essential if applied to the pot.

Mr. Layton thought the lake water from the hydrant was an injury to the plant because it contained lime, whether applied with a syringe, or used on the soil.

Other members thought differently—that if the temperature were right, the lime in the water was no objection.

It was asked if there was any time of the year when lake water was sufficiently warm to apply to plants direct from the hydrant.

Mr. Ure had applied it so in August. He had found its temperature sufficiently



high at that time of year. Mr. Layton did not consider it safe to do it at any time."

The foregoing, which refers more particularly to the application of water to pot plants, may very reasonably suggest the propriety of understanding well the properties and condition of water used for purposes of more extended irrigation. We not unfrequently hear of injury done to plants and trees by watering, and the charge is laid to irrigation; and at once a sweeping denunciation goes forth condemning the practice as "worse than useless;" when, if the truth was known, the fault would lie, not so much in the application or use of water, as its nature, condition or temperature. It is not spring-water that injures vegetation when applied, but it is *cold* spring-water; nor is it the excess of water, half as much as it is the mode or time of application. The subject of irrigation is one of growing importance to the interests of our agriculture, and our pages are always open to its discussion.

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#### PEACH LEAF CURL.

*Editor Culturist*.:—The experience of the last few years admonishes us of the necessity of close examination into the cause of the curl of the peach leaf, if we wish to avoid the almost total destruction of the fruit. To elicit discussion upon this mooted subject, which would call out information in reference to the actual extent of this disease in the different localities of the state, I will briefly submit facts which I am cognizant of, viz: Native California seedling trees suffer the most from this disease. In orchards planted with the California variety, together with imported trees, the latter were generally infected—the disease spreading and increasing in intensity from year to year. Isolated orchards planted entirely with imported trees suffered the least—only of late years a few leaves on a tree curling; still, that the disease even on these is on the increase, is apparent. Some varieties of imported trees are more liable than others. Moderate growers, with rather thin, firm leaves, are less subject than the large and succulent leaved varieties. The curl prevails, without any exception, on all the white varieties; the yellow suffer less, but only one of those, the smock free, proves itself so far to be entirely exempt.

The peculiarity in the development of the disorganization impresses me with the belief, that it is caused by the sting of an insect, rather than a functional derangement consequent upon atmospherical changes, as similarly disorganized leaves and other parts of various plants are traceable to the injury sustained by insects. To catch the culprit, however, I ask your assistance Mr. Editor, and you fellow-horticulturist. So far, I have been able only to mitigate the evil by pulling off every infected leaf, and shortening in the growing shoots, by which operation the sap is husbanded and diverted to the forming of fruit; irrigation of the trees answer the same purpose. However, there is yet a resource open for the renovation of the peach by using the almond seedling for budding the peach. The hardshell almond is free from curl under all conditions, and is withal a remarkably thrifty growing

tree, a prolific bearer, of heavy solid wood, superior for firewood. To insure success, the almond seedling should be transplanted in orchard when but a few inches high; this operation is performed with the same facility and success as the transplanting a cabbage.

Yours, &c.,

J. STRENTZEL.

MORE ABOUT ARTESIAN WELLS.

*Editor Culturist*:—I desire, from your impartiality to contributors, to publish a few lines to rectify a voluntary error made by your correspondent "SAN JOSE," in an article in the December number of, the CULTURIST, where he is trying to show that I am against artesian wells, by taking two or three lines from the letter I wrote to the *Echo du Pacifique*. This is entirely untrue, because any one who would take the trouble of reading my letter will be convinced of just the contrary.

I wish it perfectly understood that I am very far from being against artesian wells. What I am opposed to is the waste of water—the water that is lost by going into the bay. I always said, and I say it again, let every man have as many wells as he likes on his premises, but he must not be permitted to let the water run out of his property and be wasted, for by using it on his land there is none lost, because it goes back to the surface water.

I suppose "SAN JOSE" has one or more wells, and he prefers to ruin his neighbors rather than to get four or eight feet of pipe to remedy the evil. You know my opinion on this subject, because we spoke together about it, and my opinion is still the same and will not change, because I have the facts here before me, and they speak higher than anything that can be said in all the papers of the world. Any one that has any doubt about what I have said, can come here and they shall be convinced. I am certain that they are generally convinced, but have some *self-interest* to hide the truth. How can it be supposed, for an instant, that I am against artesian wells when I have scarcely any water to irrigate with? Only one-quarter of my place had some little water, and the rest had to do without it. If there are trees that have been forced by too much irrigation, most of mine have not been irrigated for these last two years. Let it be well understood at once, that I am not against artesian wells that are so useful; but strongly against the wanting of water that we need so much; at the same time I am opposed to too much water. I most generally found that one irrigation, given in proper time, was enough; we simply need a proper moisture to keep the things growing, and nearly all our brother nurserymen here, understand it that way.

But, Mr. Editor, I entriely agree with your other correspondent—"Anti Gopher." Everything he says is perfectly true; I know it by experience, having also many of these pests—gophers.

Respectfully Yours,

L. PREVOST.

### THE TRUE PRINCIPLE OF CALIFORNIA FARMING.

**W**E have repeatedly advocated a divided risk for our farmers in their agricultural operations. Oak Knoll farm, Napa, is a capital instance of the practical working of the system of operations and arrangements we would advocate. On that farm, though grain is the staple product, the risk is divided, because embracing one of the best market orchards in the state, an extensive vineyard of choice vines, both native and foreign, and an admirably conducted dairy. The young orchards are all grafted fruits, that are known to have done the best in Napa climate, the exquisite flavor, remarkably fine and beautiful appearance of which, have swept so many of our first premiums at our state and county fairs.

The dairy stock is unsurpassed, embracing some of the finest Ayrshire milkers, cross and full bloods, on the pacific coast. The system of rotation, introduced in the culture of the grain crop, is a direct illustration of a division of risk in the production of the cereals. Wheat, barley and oats, occupying annually about an equal breadth, so that, let the season or the market be as it may, the proprietor is pretty sure to hold at least one good card. The standard hands employed are mechanics acquainted with farming. The benefits of this practice are apparent everywhere—in the fences, out buildings and tools, created in times of comparative leisure. The perfect adapt- edness and stability of the buildings, made from the stone and clay of the farm, the abundance of home manufactured implements, the neatness and thoroughness of the farming, and the freedom of the land from weeds, show this to be good practice.

A system of irrigation has been adopted on the grain lands that, by a series of ditches, secures during the rainy seasons, the fullest benefits from the flooding and consequent fertilization of the lands. The straw of the farm is saved in large stacks, to which the cattle have free access during the starvation months, of those who practice burning it. The stock and farm buildings are supplied with water from an aqueduct a mile and a quarter in length. Alfalfa is grown upon the hiltops, furnishing an admirable summer pasturage for the dairy stock.

The mansion of the proprietor is an elegant structure, in the midst of beautiful pines and other conifers, and approached through avenues of the finest deciduous and ornamental trees grown in our climate. In the whole arrangement there is a permanence, an elegance, a completeness in the whole detail highly creditable to the head that plans and the hand that conducts, and which would be deserving of high praise even in a much older farming community.



**CRANBERRY STATISTICS.**—Carefully prepared statistics of the crop of cranberries grown this year at Harwich, Dennis and Brewster, on Cape Cod, show that one thousand nine hundred and eighty seven barrels of them were gathered, valued at \$23,622.

# Editor's Repository.

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**THE EDITOR TO HIS PATRONS.**—The CALIFORNIA CULTURIST, now one of the established institutions of the land, is sustained by the voluntary payment of five dollars annually from each of nearly two thousand subscribers, and a liberal advertising patronage; for which we endeavor to give an equivalent in monthly numbers of forty-eight pages each, of matter interesting and useful to those who read it.

We have no old stereotype promise of "further improvement in our journal" to make; but shall always endeavor to do the best we can. We therefore hope for a continuance of that patronage which has placed our journal in the proud position it now occupies. Our cotemporary of the *Farmer* in his issue of Dec. 16th, asks the prayers of his friends in support of his journal. An excellent idea; though at first we thought it sounded a little odd, coming from the source it does, and somewhat ominous.

Give us five dollars a year, gentlemen, as promptly as you have thus far, and with the smiles of heaven, health, and God's blessing upon our efforts, we will give you the CULTURIST, with or without your prayers, if the gentlemen having charge of the postal arrangements of the country, will do their duty as efficiently as they have heretofore, and the California Steam Navigation Company's boats continue to carry us free. With a pleasing prospect before us, with no bills to present, nor a dun with which to greet you, we wish you, one and all, a joyous, happy New Year.

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**OUR FRONTISPIECE** Is a lithograph by Kuchel, of this city, of the Osage orange, the fruit of that well known shrub so extensively used at the south and west of the Atlantic states for hedging. The fruit presents a beautiful appearance; in color a pea green, size as indicated by our lithograph, but useless for any other purpose than its seeds for propagation. The specimen from which we copy was presented us by Capt. J. Aram, of San Jose, and exhibited at the late fair in that city. The plant is among the best for producing a strong compact hedge; for, when properly grown, is proof against bulls and boys, making an admirable surrounding for fruit grounds, not only for the protection it affords from animal intruders, but from the too powerful blasts of winds. If we recollect aright, Dr. Bascom, of San Jose, has one of the finest specimens of hedge from this plant or tree, to be found in California, and highly deserving of notice.

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**A CONTRAST.**—We can hardly take up an eastern agricultural journal from among the many of our exchanges, but we find a considerable portion of their contents devoted to good advice and sound counsel in regard to a proper preparation for winter. They usually appear with headings something after the fashion of the following: "Winter protection of vines, trees and plants—protecting roses for the winter—wintering bees—winter protection of stock—a good material for banking houses—how to keep cabbages in winter," with an almost endless variety but little dissim-

ilar to the foregoing, and all going to point out the wide contrast between the winter of the eastern, northern and middle states, and that of California, in all save its more elevated districts.

At the east, vegetation is dormant in the open air, for nearly six months, requiring one-half of the year to grow the grains and other agricultural products, to be consumed by the other half. Here, our cattle and sheep graze the entire season, with little or no provision for their winter food over that of summer. Fresh strawberries and green peas, grown in the open air, are found in our markets during every month of the year. As a Christmas, horticultural present, we were presented by an amateur culturist near this city, with strawberries, grapes, green corn, green peas, cucumbers, two pears, three apples and a watermelon, all pulled from the tree or vine the day previous, that had been produced in the open air without the slightest protection from frost, and wholly uninjured thereby.

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**ADVERTISING.**—Our eighteen pages of advertising, and our eighteen hundred subscribers who read them monthly; have suddenly startled our cotemporary of the *Farmer* to a realization of facts, and in tones the most dolorous he says: "It is generally admitted that our *Nurserymen* and *Seedsmen* know pretty well where it is best for them to advertise their business. We are satisfied they do know what journal can do them the most good."

This frank admission of our cotemporary, in regard to the *CULTURIST* as an advertising medium we appreciate, and as an offset for the courtesy shown us, would gladly reciprocate were it in our power. The editor of the *Farmer* "believes" he can show the "largest Nursery business advertisement that has ever been offered in the columns of a newspaper on this coast." As he is very careful to say "*newspaper*," he is doubtless on the safe side. At present, we don't "Colonel" any "newspaper," but we do try to edit an agricultural magazine, having at the age of a year and a half more than double the number of paying subscribers the *Farmer* can boast of, after a six years' effort. The sneer of the *Farmer's*, "Colonel," about our advertising patronage in its issue of Dec. 2d, has brought us nearly enough to fill one such newspaper as the *Farmer*, and which we publish in addition to our regular forty-eight pages of reading matter.

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**NATIVE WINES.**—In the December number of the State Agricultural Society's Journal, we find the following interesting note upon the manufacture of wines in Sacramento. "A. P. Smith, of the "Pomological Garden," has presented to this office, within the last few days, one dozen bottles of wine made by him at his place, some from the vintage of 1858, and others of 1859. Each bottle made from a different and distinct variety of grapes, all manufactured by the same process. His object is, by a series of well attested experiments, to learn the most desirable varieties for wine-making in this climate; and, at the same time, what varieties, and in what proportions, when combined will make the best wines. We think Mr. S. is on the right track. The samples presented us having been tested by the best judges are pronounced unusually pure and fine for juice so fresh from the press. The wine from the Black Hamburg and Royal Muscadine are very superior—the latter particularly so. We have never tasted juice so young which was its superior.

Mr. S. has manufactured some two thousand five hundred gallons this year, and is largely engaged in growing vines of the most choice varieties for his own planting, which he designs to continue as his experience shall dictate. We wish him the most complete and abundant success, in this his work of experimenting for the benefit of the state.

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**STATE AGRICULTURAL SOCIETY'S ANNUAL MEETING.**—At a meeting of the board of managers, held December third, it was resolved to hold the annual meeting of the society at Agricultural Hall, in the city of Sacramento, on Wednesday the 18th day of January, 1860, to commence at 12 o'clock M. of said day. At this meeting the constitution provides that the officers for the ensuing year be elected, and the place for holding the next fair shall be fixed. A full attendance of all the members is solicited. Business of the greatest importance to the interests of the society will be trans-

acted. The office and rooms of the society have been removed and are permanently opened in the new Hall, corner of Sixth and M streets. They occupy the entire front of the building on the first floor. The Corresponding Secretary's office is in the south-west corner room, of the same size as the south-east corner; while the library and reading-room occupies the intervening space, seventeen by forty-eight feet. All of which, taken in connection with as much room as we need in the lower main Hall, places the society in as desirable quarters as could be wished. The friends of the society and the public in general are cordially invited to visit the rooms, examine the curiosities and enjoy the use of the library and reading-room, the latter of which is furnished with most of the leading papers in this state, besides many of the more prominent literary and agricultural periodicals of the older states.—*Ib.*

**AWARDS FOR FARMS, ORCHARDS, VINEYARDS, ETC.**—The awards in the above department will be announced at the annual meeting. This arrangement obtains generally in the older states, and is no less desirable here than there—affording, as it does, an opportunity to properly mature autumnal crops and furnish data duly attested. On account of the commercial value of an earlier award to nurserymen, the board have excepted that department, and made the following awards:

#### FRUIT NURSERIES.

First Premium—B. S. Fox, of Santa Clara county.

Second Premium—D. T. Adams, of Santa Clara county.

#### ORNAMENTAL NURSERY.

First Premium—Wm. O'Donnell, of Santa Clara county. [The county of artesian wells and irrigation. *ED. CULTURIST.*]

#### TIMBER NURSERY.

First Premium—S. Harbison, of Sacramento county.—*Ib.*

**TRANSACTIONS FOR 1858.**—The transactions of the society for 1858, have been printed by the state Senate, making a volume of near four hundred pages. Twelve hundred copies for the society, and thirteen hundred for the state.

By order of the board, each member of the society for 1858, is entitled to one copy, which is now held at the rooms, corner of Sixth and M streets, Sacramento, subject to the order of those entitled to receive them.—*Ib.*

**FRUIT CULTURE—WINTER APPLES.**—Under this head, the *Farmer and Planter*, of Columbia, S. C., says: "Our readers will find in the present number, a very sensible letter from Mr. Mock, of California—and first published in the *CALIFORNIA CULTURIST*—on Fruit Culture, Winter Apples, etc. Mr. Mock is good authority—he was one of our first pioneers in the introduction of choice fruits at the south. His nursery was in North Carolina, and for years after he began the business he was obliged, in order to get sale for his trees, to have them peddled over the country, going from house to house, and finding it a hard matter to sell them at twelve and one-half cents a piece. Many of the best orchards in North Carolina and South Carolina owe their existence to Mr. Mock's good sense and indefatigable industry.

He was one of the first to learn the importance of acclimation, and his experience is worth a good deal. Mr. Mock can look back over his former field of labors, and enjoy the satisfaction that his efforts have borne good fruit."

The year old apples, we had the pleasure of exhibiting at the different fairs the past autumn, were a few of the late keeping varieties, introduced into California by Mr. Mock, from his North Carolina nurseries, of southern seedlings.



**NURSERIES OF SAN ANTONIO AND OAKLAND.**—*Editor Culturist*:—In your December number you have—inadvertently perhaps—done injustice to the nurseries of San Antonio and Oakland, by your assertion that “trees grown in Santa Clara valley, or along the east side of the bay as far as San Lorenzo, are far preferable to such as are raised in the vicinity of San Antonio or Oakland.” Now, sir, will you allow me to say that trees grown in this vicinity, are better than those grown in Santa Clara or any other locality in the state? [Certainly! say just what you please. Ed.] And the reasons why they are better are these: In the first place they are grown in a colder climate than is found elsewhere in all the low, bay or valley country; the consequence is, the wood is better matured, whilst the trees have a larger proportion of root to top, than trees grown in a warmer climate, and consequently suffer less in transplanting; and can be transplanted earlier in autumn in consequence of their earlier maturity. Are not these reasons conclusive? OAKLAND.

To some minds doubtless they would be; but as this is a subject that ought to bear investigation, we will give it a thought or two. We never positively asserted what you have charged upon us. We stated what was *our belief*, and we may be mistaken. We gave as a reason for our belief, that these localities, exposed to the cold, raw sweep of the Golden Gate winds, have a climate peculiarly local in character, and producing a vegetation alike peculiar (in its character) and illy adapted to the condition of dissimilar climates.

Now is not this tolerably sound logic? and who would have believed us, if we had reasoned just the opposite of this? and said that Oakland and San Antonio, exposed to the cold, raw sweep of the Golden Gate winds, possess a climate peculiarly local in character; therefore, nursery trees grown there, are *better adapted* to the condition of dissimilar climates. Would there be either common sense or reason in such an assertion? If we were to plant out an orchard in Oakland or Alameda, we would not go to Santa Clara for trees; and only because their climate is so entirely dissimilar. We should, as a general rule, prefer to have our trees from a locality as little differing from that where they were to be permanently grown, as possible. We may be wrong in this; but, if so, are willing to be set right; and, whilst ever ready to give room on our pages to the opinions of others, we shall as assuredly claim the right of expressing our own. We are not among those who believe in the abandonment of a principle, merely because it may chance to interfere for the moment with an individual interest.

We doubt the propriety of sending to a colder climate than our own for trees; we would not send to Oregon, therefore, even though a variety or two grown there, might prove to be good keepers with us; because we believe trees grown in a milder climate, will make the best trees for such climate. The nurseries of Canada and New England *are not* now sustained by the demand for trees to be finally grown in the middle or southern states, though their transportation would be easy. The finest flavored and best keeping apples and pears, in the Carolinas and Georgia, are the product of trees that have been grown and matured there. The utmost limit of cold in which a tree can be grown, is very far from being the best fully to develop its most perfect organization. Is it not too cold in the vicinity of Oakland or San Antonio to grow, as a regular crop, the peach or even grapes to perfection? If it is so why should nursery trees, grown there, be “*better*” than those grown at San Lorenzo, “Santa Clara or any other locality in the state,” as affirmed by our correspondent? We don’t say they are not, only it is our *belief* they are not.

**AGRICULTURAL NEWSPAPERS.**—The low price at which the weekly agricultural newspapers of the Atlantic states are furnished to subscribers—one dollar a year—is securing a rapidly increasing circulation and patronage in California. The firm of Warren & Carpenter, Clay street, above Montgomery, has the agency for nearly the entire of the eastern agricultural and other newspapers and magazines.

We learn that the circulation of eastern agricultural weeklies, in California and Oregon, already reaches to more than half that attained by any similar publication on this coast, and rapidly extending. We say let the light come in, we cannot have too much.

**FRUIT TREES FOR NEVADA TERRITORY.**—The recent discovery of extensive and valuable mines of lead, copper, silver and gold, in the country adjacent to the eastern base of the Sierra Nevada mountains, and the immense influx of miners and adventurers thereto, making the matter of a large resident population at no distant day, a certain event, very naturally suggest the expediency, safety and profit that would inevitably result from an early introduction and growth of such fruits as might be found adapted to the climate. That some varieties of fruits will succeed there in some localities, can hardly be doubted; at the same time it will be well for those who contemplate planting extensively, to bear in mind the extreme liability of much of that great system or line of inland valleys, to late spring and early autumn frosts; not only on account of their near proximity to the snowy ranges of the Sierras, but to the fact that nearly all of the best valley land there, has a positive altitude or elevation, of about five thousand feet above the sea level, or tide water in Sacramento river. We are aware that much fine fruit is grown on the western slope of the Sierras, that Coloma and Placerville and other places of similar altitudes, have produced some of the best fruits of our state; but these places have an elevation of hardly two thousand five hundred feet, or but half that which pertains to the eastern slope, valley country. All manner of fruit trees may succeed better than we anticipate, in their production of fruits; but, until something of a definite character is known, of the fruiting capacities of those elevated valleys, we shall look upon any attempt to grow the finer fruits there, upon a large scale, as an experiment, doubtful as to its results. We would like to hear from our subscribers there—Cary, Smith, Carson, Wetzler, Job, Hall and Thompson—all or any one of you, upon the subject of fruit culture in your beautiful valleys.

#### OUR ORCHARD INVESTMENTS:—

**EDITOR CULTURIST:**—I am glad to notice the interest taken by divers horticulturists in the cost, of orcharding, as evinced by their communications to some of the daily papers. If we consider the energy and enterprise manifested in this business, both in planting and propagation, it will not be surprising that the interests of nurserymen and orchardists seemingly clash. But this is only for a time; if the subject is examined, those who plant, will do so knowingly in regard to their future competition; those who propagate, will study well the varieties in excess, and increase only those which are now insufficient. It is our misfortune that high rates of interest, necessity in finance and the comparative limit of market and population, restrict the majority of people from looking beyond a five years' investment, and few are bold enough to look even that far. In that our orchardists have indeed been enterprising, and it is painfully to be regretted so few there are of our pioneers in this culture, who will reap the fruits of their own planting; how few there are who now set under their own vine. Precarious seasons, high prices of labor and the accumulating interest account on a long investment, have stripped them of their homes, before trees have fruited or plans matured. It is well, Mr. Editor, this discussion has been introduced; we want no mistakes or failures in this great California interest, nor in any other that develops our agricultural resources. Let us have the facts and figures, if we can learn a lesson from such records; let us have them, for only by comparison with the past, can we achieve success for the future. In this discussion we seem to have had the costs of orcharding from some of those engaged in the business; if they are too high, if the work has been done cheaper, can you find some farmer's account book to give us actual cost, rather than columns of prospective cost, in a matter in which experience is so valuable, and practice is so varied. My own experience is that the cost of these operations are nearly always underrated, and profits too often calculated on the yields, not of orchards, but of individual trees. Give us a fair showing of the comparative costs of vineyard and orchard culture, during the years in which such investments have to be supported; show us when we may safely reckon them to be self-supporting, and you will do good service to individuals and to

CALIFORNIA.



## METEOROLOGICAL TABLE.

For Sacramento, California; being an abstract of Observations made during the month ending November 30th, 1859; Lat. 38°, 34', 41'', N.; Long. 121°, 27', 44'', W. Height of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its height above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By THOS. M. LOGAN, M. D.

## Thermometrograph.

	Des.		Des.
Highest Reading by day on the 1st .....	70.00	Mean of all Highest Readings by day .....	57.46
Lowest Reading by night on the 8th .....	37.00	Mean of all lowest readings by night .....	44.28
Range of Temperature during month .....	33.00	Mean daily range of Temperature during mo	11.23

REMARKS.—It is our lot to chronicle several unprecedented meteorological occurrences, which render the month exceptional, and rather point to the inference that the deficit of rain, during the last three years, is likely to be made up by the present season. Never before has so great an aqueous precipitation been experienced during the month of November; nor has the Sacramento river ever been known to rise as high so early, as it has lately done. In the memorable winter of 1849-50, although the rains set in as early as the 23d September, still it was not until the latter part of December, and beginning of January, that they became so copious as to make an impression on the river, and to cause apprehensions of the overflow, which occurred for the first time on the 10th January, 1850. This season, in consequence of the heavy fall of 1.900 inches of rain between the 6th and 11th of the month, the river rose 14 feet, and marked at the latter date, at about 10 p. m. on the city scale, 16 feet above zero. This sudden rise which soon passed off, was occasioned chiefly by the freshet of the American river, the descent of which is more sudden and abrupt than that of the Sacramento. These early rains were ushered in by disturbances of the electrical equilibrium, seldom witnessed in California, and especially at this season of the year.

After an interval of one week, the weather again assumed, on the 17th, its rainy habit, and continued more or less unsettled to the close of the month. On the morning of the 25th, the wind, which had been blowing very high from the South East, during the previous night, freshened into a gale, and blew about S. E. W. for a short time, with greater violence than we have ever before experienced here—not even excepting the gale of the morning of the 1st January, 1855. Fortunately, the violence of the gale was soon spent, or the damage done would have been much greater; as the same gust which carried away the ventilator of the roof of the Agricultural Pavilion, removed most of the shutters of other buildings that happened to be in its course, and thus laid their roofs open to the force of the wind and the ingress of the rain.

The plural deposition of the latter part of the month, though of longer continuance, did not, however, equal in quantitative proportion that of the first period; and consequently, the river did not rise the second time above seven feet. Nevertheless, as seen in our table, an uncommonly large amount of rain has fallen in the aggregate—for exceeding the average of former observations, and marking the month of November, 1859, as the most rainy ever known in California. What may be the portent of these early and abundant outpourings, time alone can tell. But whether or not there will be any consecutive uniformity in the coming months—certainly, enough water has already fallen to fully saturate the earth; and the ample opportunity thus afforded for miners and agriculturalists to avail themselves of its benefits, will doubtless result in great good to the country.





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# THE CALIFORNIA CULTURIST.

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FEBRUARY, 1860.

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## STRAW FOR FODDER.

**W**E believe there is not a state in the Union in which there is a more reckless waste of the straw of the grainfield than in California. Thousands of tons of the cleanest, brightest straw ever grown in any country, are annually consumed by fire, that might with a far better economy be consumed by the stock of the farm. The great bane of our more southern states' agriculture—one that has impoverished its millions of acres, is a system of cropping with grains, with little or no admixture of stock husbandry. A system that, whilst it abstracts from the soil the constituents of a vegetable production in a rapid degree, gives little or no return for the constant drain made upon it. The attention of southern culturists has recently been engaged upon this important feature of their agriculture, and its results bid fair to revolutionize their entire system.

The main feature upon which they ground their improvements, consists in converting their straw, haulm and refuse of all available vegetable productions into manure, by being first fed to stock and then as manure returned to the soil.

Of the value of straw, as feed for animals, we believe it is under estimated in this state; and for the purposes of substantiating our belief, and directing the attention of our grain producers to their straw, as an auxiliary source of wealth, we subjoin the following excellent article upon this subject, from the *Rural New Yorker*.

“During the discussion at the late state fair of this state, a gentleman of Erie, stated that he had found straw, cut and steamed, and mixed with a handful of meal to give it a relish, of more value in keeping stock than the same weight in Timothy hay. This idea of steamed straw being more valuable than good Timothy hay was rather startling, and we do not think one in a score of those present was prepared to indorse or willing to believe such a statement, without further proof. Mr. Mechi, however, the celebrated English farmer and experimenter, advances the same opinion and urges its trial upon the attention of farmers, declaring it to be ‘a vital question for agriculture.’ He considers that the present low estimate placed on straw, arises

from the fact that farmers do not understand how to feed it, and unless properly prepared it is not available as food. In all cases straw should be cut and steamed, and in this condition he thinks it is as good as the same weight in hay. In proof of this he gives the result of some experiments he has made. In feeding ten short-horn bullocks, about thirty months old, he gave a steamed mixture of two hundred and sixteen gallons of cut straw, six of rape cake, three of malt combs, and five of bran, moistened with twenty gallons of hot water per day. He also fed three hundred pounds of mangel wurtzel; the whole cost, not including the straw and labor, is about one dollar per week. The animals are in a fattening and growing condition, and advancing remuneratively. After feeding they lie down contented, free from restlessness. He further says: 'The whole question may be said to hinge upon the condition in which the food is administered. It must be moist and warm. Were I to give my bullocks the same quantity of cut straw in a dry state, they would not eat one-half of it; and, besides, they would be restless and dissatisfied. This I know from experience.'

Now, we will ascertain how far these statements of practical men are sustained by the composition of straw, as shown by analyses. The following table we take from the *Cyclopedia of Agriculture*:

AVERAGE COMPOSITION OF WHEAT STRAW.

100 parts of wheat straw contain—Nitrogenized substances, (muscle-producing substances) Air dry.....	1.85	Dried at 212° F.	2.03
Substances free from nitrogen (heat and fat producing mat- ters) soluble in potash, air dry .....	26.34	" "	35.06
Do., do., insoluble, air dry.....	31.22	" "	35.07
Mineral substances, air dry.....	4.59	" "	6.01
Water, air dry.....	26.00	" "	.....
	100.00		100.00

Thus it will be seen that one hundred pounds of wheat straw contain over sixty-nine pounds of muscle, heat, and fat producing matter, and twenty-six pounds of the remaining thirty are water.

Dr. Lyon Playfair, the chemist of the English Royal Agricultural Society, gives the following table of the relative value of wheat straw, hay and several other kinds of food:

COMPOSITION OF THE PRINCIPAL ARTICLES USED AS FOOD.

100 lbs. wheat straw contain	79	lbs. dry organic matter or food.	18 lbs water.	3 lbs. ashes
100 lbs. linseed cake.....	75 1-2	" " " "	17 "	7 1-2 "
100 lbs. peas.....	80 1-2	" " " "	16 "	3 1-2 "
100 lbs. beans .....	82 1-2	" " " "	14 "	3 1-2 "
100 lbs. ordinary hay.....	76 1-2	" " " "	16 "	7 1-2 "
100 lbs. barley meal.....	82 1-2	" " " "	15 1-2 "	2 "
100 lbs. oatmeal.....	89	" " " "	9 "	2 "
100 lbs. bran.....	81	" " " "	14 "	5 "
100 lbs. oats.....	79	" " " "	18 "	3 "
100 lbs. potatoes .....	27	" " " "	72 "	1 "
100 lbs. red beets.....	10	" " " "	89 "	1 "
100 lbs. turnips .....	10	" " " "	89 "	1 "
100 lbs. Swedes.....	14	" " " "	85 "	1 "
100 lbs. white carrots.....	12	" " " "	87 "	1 "
100 lbs. mangel wurtzel.....	10	" " " "	89 "	1 "

By this it will be seen that one hundred pounds of wheat straw contains more real food than one hundred pounds of hay, nearly as much as one hundred pounds of bran, and precisely the same as one hundred pounds of oats. We do not suppose that the experience of many of our readers will agree with this scientific estimate of the value of wheat straw, and we doubt if careful experiment would prove it so in practice. But, reducing the estimate one-half, and then one hundred pounds of straw is equal in value to fifty pounds of oats, or fifty pounds of wheat bran, for which many farmers willingly pay the cash, while they waste tuns of straw in yards and stables. But who is prepared to say that this estimate will not prove correct in practice? Who has cut and steamed, or scalded straw, and fed it with a little corn or oatmeal or bran, and made even an attempt to ascertain its value? Many, we have no doubt, have felt compelled to sell a portion of their stock on account of the scarcity of food, and to put the remainder on short allowance, which all know to be a most unprofitable practice, while they had straw enough, if prepared in a manner suitable for stock to eat, to keep all in a thriving condition.

In nearly all the English estimates of the value of the wheat crop, which we have seen, the straw is reckoned at ten dollars per tun. This may be considered a high estimate, with our present notions and experience, but the gentleman of Erie county, to whom we above referred, informed us that he considered wheat straw worth that price, and that, by its use, in the last two years, he had saved in feeding over five hundred dollars. This is the experience of an American farmer. We hope our readers will not only take care of their straw this season, but institute such experiments as will enable them to form a reliable estimate of its true value for food.



**IMPROVEMENT IN HOP PLANTING.**—We are indebted, says the *Country Gentleman*, to some attentive friend in England, for a copy of the *London Star* of the 24th ult., containing the following interesting passage marked in its Paris correspondence:

A valuable discovery in the cultivation of hops, has just been communicated to the academy. Like most agricultural improvements, it has been the result of observation made by a laboring peasant. It consists in making the plant run in a horizontal direction instead of climbing up the pole. This is managed by means of a low trellis work of the simplest construction. The advantages of this mode of culture are numerous. In the first place, it enables the grower to investigate the plant while growing, and cleanse it from the numerous insects which injure it to so vast an extent; then it is protected from the sun, which always destroys the upper shoots; it obviates the great destruction of hops in stormy weather, when the wind lays low whole hop grounds from the height of poles; and, most of all, it enables the gathering of the cones to take place without uprooting the plant, besides permitting the selection of the ripest ones at first, and preventing the great loss which arises from the necessity of tearing down the whole plant to get at the ripest blossoms.



### HORTICULTURAL PRACTICES.

**EDITOR CULTURIST:**—That horticulturists should differ in their opinions of the utility of certain practices pertaining to their vocation, is in nowise extraordinary when we take into consideration the multiplicity of circumstances that control their action. Thus, as in tree-growing, one is situated upon a sandy loam so nearly on a level with the waters of bays and rivers, that should the roots of trees penetrate deeply, they must inevitably reach a wet, cold, inert subsoil, illy adapted to the healthy condition of the tree. On the other hand, a soil like the alluviums of our rivers—deep, rich and sufficiently dry for roots to penetrate deeply without reaching a subsoil perpetually saturated, may be the site selected for tree-growing; and again our hills, fertile beyond example, but with a subsoil dry, hard and almost impervious to moisture from either above or below—and if to moisture then nearly so to the roots of trees—may be a third condition of soil; and yet all of them under favorable circumstances adapted to the growth of orchard trees. And yet no one can deny, that whilst the tops of such trees may find in their climates but little dissimilarity, their roots may occupy soils as unlike as possible. It becomes, then, a question of two sides, as to whether the same culture is equally adapted to the different conditions.

I am led to these remarks, by observing the views taken by the writer of the excellent article on the Horticulture of California, in your January number. The greater part of his views I most cordially indorse, but to some, I am compelled to take exceptions, because in direct variance with my own personal experience. Mr. Flint says: "Much controversy is had respecting the mode of cultivation, so as to encourage surface or tap-roots. My experience is in favor of surface feeders, which are within the reach of atmospheric influence; such cultivated trees come into bearing sooner and produce finer flavored fruit." Now will not the effect, produced upon tree and fruit, depend much upon the nature and condition of the subsoil, its fertility, humidity and warmth? Has Mr. Flint, upon any one of the varieties of subsoil I have named, raised trees that are fair samples of the two conditions, viz: trees that have been grown from seeds and never transplanted, side by side—but at a proper distance—with those that have suffered removal and a certain destruction of all deeply running roots? If there is such an instance of tree-growing in the state, I would be glad to visit the locality and ascertain, first, whether those trees so raised from the seed, really have the tap-root—which can be ascertained by no other process than digging under them—and, secondly, whether the transplanted trees, bearing the "finer flavored" fruits, have not actually made strong tap-roots in their new position, to which, of course, the rule of Mr. Flint cannot apply, as such fruit is supposed by him, to be the product of surface roots only.

I can easily imagine a great difference in the flavor of the same varieties of fruits, grown upon the three conditions of soil I have named, even though all possessed a similarity of growth in their roots, arising from the different constituents of their soils and nothing else. Hence the fallacy, in my opinion, of attributing a certain

flavor to fruit, as arising from a certain condition of the roots merely, when the condition of soil cannot but have a very controlling influence. In the orchard of Capt. J. Aram, of San Jose, the curious or the inquisitive in these matters, can be pointed to trees that formerly stood in the nursery row, that now make a portion of the orchard, having never been removed. These trees, in direct opposition to the views advanced by Mr. Flint, are not only as vigorous, but the most fruitful, and the fruit equally fine flavored. These unremoved trees, raised from the seeds in the places they now occupy, may not have the tap-root, but the probability is they have, as they evidently suffer far less from the drought of summer, than trees that suffered transplanting, with a probable loss of the main tap-root, or, as the Chinese say, "the root that drinks only." I mention this fact in relation to the trees in Capt. Aram's orchard, as furnishing evidence directly the reverse of the experience of Mr. Flint; and now if Mr. Flint will show me the reverse of this, in trees growing anywhere in this state, then am I ready to admit, that directly opposite opinions can be honestly entertained, in reference to the utility of deeply running roots. I do not, however, think it enough that mere theory, based upon the supposition—for it is only supposition—that subsoils are injurious to vegetation, or in any way poison the healthy functions of the tree, should be substituted for matter of fact and ocular proof of the contrary.

There is another point in Mr. Flint's admirable essay that I would discuss for a moment, believing that such discussion may be the means of eliciting the truth. Mr. Flint says: "It is noticeable that, on the deep alluvial bottoms of some of our rivers, where the tap-root penetrates to a great depth, that the trees make a prodigious growth of sappy, spongy wood, destitute of fruit spurs." Will Mr. Flint have the kindness to point to the particular locality? The mere repetition of a fallacy, word for word, promulgated by the editor of the *California Farmer*, merely for the purpose of giving vent to his personal malice against Mr. Lathrop, of San Jose, is not what is desired as a guide in horticultural practice, unless it can be proven that it is not a fallacy.

The position assumed is this: That the roots of trees, running down to water, or trees that receive artificial irrigation, are forced into the production of "sappy, spongy wood, destitute of fruit spurs." But the orchard of Mr. Lathrop, which has received abundant irrigation, shows the very reverse of this; whilst Mr. Flint remarks, on page 295, speaking of the site the best for wine-producing vineyards, considers irrigation of secondary importance, "and mainly useful only in bringing the young vineyard sooner into the bearing of a greater quantity of fruit." Now it may be that an abundance of water will produce soft, spongy, fruitless wood upon the apple, and just the reverse upon the vine; but really, upon what principle in vegetable physiology such a proposition is based, I am at a loss to determine. Heretofore it has always been deemed a matter of the first importance, in view of present ruling prices, that fruit trees and vines come early into bearing. Now if irrigating the vine will produce this in accordance with the views of Mr. Flint, is it not of the highest importance that we irrigate? A single remark further and I am done with my

objections to a few of the views as advanced by Mr. Flint. It is evident he is not in favor of irrigation, and, with a sweeping remark asserts, that "vast injury is annually being done to young orchards and vineyards, by an indiscriminate use of water." Will Mr. Flint instance such orchard or vineyard? J. J. JOHNSON.

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### PRIZE ESSAY ON POMOLOGY.

BY WILLIAM SUMMER, POMARIA, S. C.

*To which was awarded the Premium at the Annual Meeting of the State Agricultural Society of South Carolina, in 1858.*

[CONTINUED FROM PAGE 307.]

**THE PEAR.**—The pear, in its original state, was astringent and useless for dessert; but, by gradual improvement, it is now rich and delicious, and, when grown in perfection, it is eminently distinguished for its great delicacy, its melting and exquisite flavor. Greatly excelling the apple in these particulars, it will be more generally adapted to all portions of our state. It will succeed in any ordinary good soil, provided the subsoil is dry, and does not retain too much moisture. In such locations it is subject to blight, and, in extreme sandy soils, when the trees are attacked, no remedies will restore them to a luxuriant condition.

The pear succeeds admirably, as a standard, upon the rich clay soils of the upper districts of this state. These soils abound in iron impregnations, and fine specimens, on such locations, have been grown, both of the largest size and the best flavor. We have seen trees of great size, planted at the first settlement of the country, by our ancestors, who were careful to bring over some seed of the varieties which they obtained in the fatherland. Many of these have proved good varieties; but the pear culture was even then in its infancy, and it was left with Professor Van Mons, of Belgium, to develop by his experiments, the hundreds of new varieties which were produced by crossing the different kinds. He produced many sorts which will go down to posterity, associated with his name. Some of these, which have been fruited in England and at the north, have been rejected, as the shortness of the season prevented their ripening, and, when fruited here, have proven the best varieties for us. From the experience which we have had with dwarf pears, we are more favorably impressed with their complete success than ever. Dr. A. Hasel, of Georgetown, S. C., informs us that there are pear trees upon the quince, in that neighborhood, which are at least forty years old, and still in full vigor and constant bearing. Mr. Robert Chisolm has for many years produced heavy crops of pears in the vicinity of Beaufort. The Angers and Paris quinces, upon which they should alone be propagated, grow here with great vigor; and, from this fact, many choice varieties can be propagated, as dwarfs that do not succeed in colder climates, grown thus, require but little space, from eight to ten feet being sufficient, producing fruit in two or three years after planting, and are better adapted to sandy soils than standard trees. They should be trained as pyramids, branching within twelve inches of the

ground, thinning out the branches and shortening their growth one-half annually—taking care to preserve a leading shoot, which, though cut back, should always be done with a view to keeping and forming the tree into a regular pyramid—until they arrive at a bearing state, when they will require comparatively little pruning. Their particular adaptation to our climate, and early bearing, should give them a place in every fruit garden.

Good, thorough culture, and moderate manuring are necessary. From experiments, it has been ascertained that iron is a good element for the pear, and, as it requires but a small quantity, it is readily obtained; as the refuse from blacksmiths' shops, from machine shops and foundries, may be used when this ingredient is wanting in the soil. The land should be well cultivated, among pear trees, in some root or pea crop, and the manure used should be such as to give a moderate growth. Stable manure, composted with peat or vegetable mold, is excellent for dwarf pears. Besides this, use lime, ashes, salt, gypsum, for high lands; whilst charcoal, and a few coal ashes, when they can be obtained, are particularly beneficial to wet soils. Bone manure, soap suds and sweepings from the poultry-house, will be found valuable, when incorporated into the compost heap. The most formidable difficulty in the cultivation of the pear is the *blight*, known by the various names of the *fire-blight*, and *frozen-sap blight*, and *insect-blight*. The causes may be various, but the appearance is the same—a sudden withering or turning back of the leaves, on a portion of the limbs, during rapid growth, and often while the rest of the tree remains apparently in full vigor. The disease extends downwards, unless naturally or artificially checked, until the whole tree is destroyed. The causes have been closely investigated for years, by the most skillful cultivators, but, still, a satisfactory explanation, applicable to all cases, has not been made. The earlier theory was, that the hot rays of the sun produced the disaster—hence the original name "*fire-blight*." It was subsequently alleged that a small insect, (*scolytus pyri*) by the infusion of poison, caused the death of the branches. More recently the "*frozen sap*" theory has been extensively adopted. The explanation of this theory is as follows: A damp and warm autumn causes a late, unripened growth of wood, not able to withstand the effects of winter. It is acted upon by severe frosts, as was the case last spring, which brought on a sudden blight in the pear trees throughout the country. While this form of disease in the decomposition of the sap by which it becomes poisonous in its nature, and by passing downwards through the bark, is destructive to the tree; it still does not spread in its ravages like that of "*insect-blight*." However various the causes, there seems but one remedy, and its progress must be arrested by the immediate excision of the dead branches. The remedy, to be effectual, must be promptly and fearlessly applied. Many cultivators, through fear, do not cut far enough below the diseased portion, and leave the seeds of death remaining still within the tree. Others delay the application for a number of days, until the case is hopeless. In ordinary cases entire success will follow immediate excision.

We have many choice varieties of the pear which have been introduced from Europe, and every year some excellent native varieties are brought into notice by

amateurs. We may confidently expect, in a few years, to be supplied with such native kinds as will, within our latitude, carry the season of this delicious and wholesome fruit even into the spring. We here only enumerate by name some of the principal kinds fruited and proved to be adapted to our climate.

Madeline, Upper-Crust, Julienne, Bloodgood, Jargonelle, Dearborn's Seedling, Rostizer, Summer, Franc Real, Bartlet, Andrews, Buffum, Burns, Bosc, Beurre Brown, B. Aremberg, B. Gaster, B. Golden, B. Diel, B. Oswego, Brandywine, Charles of Austria, Doyenne White, Doyenne Grey, Delices Jodoigne, Duchesse d'Angouleme, Dix, Flemish Beauty, Glout Morceau, Lawrence, Moor's Pound, Niles, Philadelphia, Seckel, Steven's Genesee, Vicar of Winkfield, Winter Bon Chretien, St. Ghislain, Urbaniste, Winter Nelis, Washington, Louise Bon de Jersey, Novo Simon Bovier, Ott, Jaminette, Doyenne Alencon, Doyenne Downing, and others, which will be described in the appendix.

**THE PEACH.**—It is so generally cultivated that it would seem almost useless to urge its claims upon the attention of our people. All are aware of its usefulness, though it is too often propagated from the seed alone, by which means entire orchards are planted of comparatively worthless varieties. The best varieties only should be cultivated. These should be carefully budded, and a succession of fruit, from the Early Nutmeg, Early Ann and Early Tillotson, until the ripening on Scott's October can be obtained. A new impetus has been given by the successful growing of the early varieties for the northern markets, by the example of——Gregg, of Graniteville. When it is considered that our people have one month to supply the northern markets with this fruit, or until the first of August, before their peaches can be ripened, that many thousand bushels are required daily for the New York market alone, it will at once be seen that no fears need be entertained that an over-supply will be produced. Within the latitude of our state lies the proper limit for producing this delicious and wholesome fruit, in its greatest perfection; and, as it promises to be so remunerative, the best varieties should be cultivated extensively, to supply this increasing demand. For this purpose we would recommend Fay's Early Ann, Early Tillotson, Pierce's Early, Early York, Tice's Early, Summer's Early, Early Admirable, Amelia, Acton Scott, Crawford's Early, Crawford's Late, Chevreuse Hatif, Coe's Early, Troth's Early Red, Honest John, George Fourth, Red Rareripec, Yellow Alberge. These will bring in the regular peach season at the North, when it is not expected that we could compete with those who can supply the markets at home. Until within a few years past there was so much indifference to the cultivation of the peach that quite a deficiency of choice varieties were found to supply the season after the Heath Cling; but lately superior September and October varieties have been produced, keeping up a succession until frost. Among these, in South Carolina, may be mentioned Clennore Cling, Atwood's Late Cling, September Free, Chaplin's Late Red, and Chaplin's Green Cling—this last ripening as late as the tenth of October, and even at this season it has all the delicious and exquisite flavor of the finest peach of mid-summer.



The peach tree requires to be shortened in by cutting back the annual growth one-half. When trained by branching low, and with regular, well-formed heads, the fruit is much better, and the trees can better sustain their heavy crops of fruits, and are more durable.

The principal enemy which the peach, in our climate, has to contend with, is the borer (*Egeria exitiosa*). It cuts its way into the bark just below the surface, and frequently kills the tree. It can be destroyed by scraping away the earth from around the tree, and following the worm to the end of the hole with a knife. But to destroy them effectually, pour hot water in the holes around the tree. Those which have escaped the eye will be thus destroyed. An orchard thus examined in early spring and in summer few will escape. An easy and effectual method of counteracting the injurious depredations of the *Egeria exitiosa*, is to make hillocks of ashes about the stem of the tree in April. The eggs of the fly are deposited at the surface. In the fall, spread the ashes about the roots of the tree; the eggs thus perish, and the tree receives great benefit from the scattered ashes. As a simple preventive, the hillock may be made of earth, or saw-dust, or sheathing of hardware paper—twelve or fourteen inches may be tied around the stem of the tree, to prevent the deposit of the eggs, but in either case it must be removed in autumn. This precaution will, if pursued regularly, keep the trees healthy and thrifty.

The fruit is sometimes subject to worms, which more particularly infest the trees grown in gardens. The only remedy in this instance is, to pick up daily all the waste fruit that falls. In the orchard, give swine the range to pick up the waste fruit, and for this purpose cultivate in some crop that can be fed off by them, and occasionally by sowing down in oats, which must be eaten off green, early in spring: the drippings of the animals making up fully for the crop taken off.

*The Nectarine* is a variety of the peach, and requires the same training and general treatment.

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**THE PLUM, APRICOT AND NECTARINE.**—These being thin skinned fruits, are subject to the attacks of curculio. As yet no certain remedy has been found to prevent their destructive ravages, but if planted about yards, and in clay soils, where the ground is hard and tramped, or where pigs and poultry can pick up the waste fruit, they will often produce abundant crops. It is hoped that the remedy which has been suggested, of planting these fruits on a location surrounded by water, thus preventing the ascension of the curculio, will entirely protect them. A location of this kind is not, however, within the reach of all who wish to cultivate these delicious fruits. The culture of plums, for the preparation of prunes, is an object worthy of the attention of our people. There are several varieties, such as St. Catharine's, Dutch or German Prune, Domine Dull, Inckworth Imperatrice, Fellemborg, etc., from which the best prunes are made, equal to those imported. The German process, simple and easy, is to heat them in a brick oven, at first barely wilting them, then heat them several times in a moderately hot oven, taking care not to scorch

them. They are pressed into shape each time as they are taken out, and regularly turned on the boards.

The ordinary varieties, such as the Damsons, are dried in the same manner, and are valuable for cooking, for making tarts, when stewed, being wholesome and nutritious. The plum requires abundant food in the soil to bring it to perfection; and where a plentiful supply of animal manure has been given, salt will be found highly beneficial. This should be spread as far as the roots extend, until the surface is white. Ashes, in soils devoid of lime, will be necessary. From a bushel to a bushel and a half, to a bearing tree, is the proper quantity. This application serves also to prevent the leaf blight or premature casting of foliage, which proves, in some seasons, a serious disaster to the plum, and prevents the ripening of the fruit.

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**QUINCES.**—The quince is of easy culture, but requires to be grown in rich, deep soil, to produce large, fair fruit. The principal varieties are the Orange, Portugal, Rheas, Angers, Paris, Seedling. The Paris, or Fontenay, and Portugal ripen later, and are excellent varieties for preserving and baking. A few trees neatly trained and trimmed, should be grown at least in every garden. As a remunerative crop for market, it is worthy of general culture, the fruit always commanding a ready sale in our cities and towns, at good prices. Barn-yard manure, with salt in abundance, mixed a few months before it is applied, and spaded in around the tree, will render trees fruitful, and the fruit of the best quality. New plantations to be made in old worn-out soils, should have a liberal dressing of virgin earth, or leaf-mold from the woods. Ashes will at all times be beneficial in producing good, sound fruit, and prevent, in a great measure, the rot to which it is so subject. The trees should be mulched about the roots to preserve a moist temperature.

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**THE FIG.**—The fig also deserves our attention. It is of easy culture and propagative, and there are now many choice varieties. The Brown Turkey, the Red Turkey, and the Celeste, are hardy varieties, and are the best for general culture. The White Nerci, the Alicant, and the Havana, are not so hardy, and only succeed well south of thirty-five degrees; but, with a little protection, and the advantage of shelter, they can be acclimated within the entire latitude of our state. They are easily dried, and every family could prepare a supply for their own consumption. The fruit is free from the injury of insects, and from time immemorial "the learned doctors" all agree in recommending it as a wholesome fruit. Give it, therefore, a place in your collection, and encourage your children to eat it, and it will be found beneficial to health.

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**THE POMEGRANATE** comes up with the same associations of the fig, and from its fair and lovely fruit asks for a place where the climate favors its growth, and is an encouraging instance of the successful acclimation amongst us of a tropical fruit. There are several new varieties which promises well.

*The Almond* produces heavy crops of fruit, and, with a little attention, its culture could be made profitable.

*The Jujube* is hardy here, and has produced abundant crops of fruit in Beaufort.

*The Spanish Maron Chestnut* and the *Madeira Nut, or English Walnut*, both thrive well, and there are trees now bearing good crops of fruit. The fruit, when eaten fresh, is wholesome and agreeable to the taste. They could be made valuable if grown in sufficient quantities to supply our own markets. The road-sides should be planted with these trees; they would not only be profitable but highly ornamental.

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**THE STRAWBERRY.**—The easy culture and abundant early fruit, coming as it does with the spring, makes the strawberry worthy of a place in every garden. The soil requires to be trenched eighteen or twenty inches, and made rich with vegetable mold and a compost of well rotted manure and ashes. The soil best adapted to its growth is a sandy loam, but any heavy land may be made suitable, by the addition of sand and vegetable mold. The plants should be set in rows eighteen inches apart and twelve inches in the drill. Plant in October and November in autumn, and in February and March in spring. The best early varieties are Longworth's Prolific and Albany. The Albany, or Wilson's Seedling is also a new early variety of the highest promise, producing abundant crops of fine large fruit, which continues productive for several weeks. The Moyamensing is also a good variety. McAvoy's Extra Red and McAvoy's Superior are both estimable varieties, the Superior being in every way worthy of its name.

The Hovey Seedling is planted for the principal crop—and with the Early Scarlet or Oregon Prolific Staminate, as fertilizers, it invariably produces most abundant yields. It succeeds the Longworth, and continues in bearing until the early orchard fruits begin to ripen. Should the weather prove dry at the season of flowering, the beds should receive copious waterings. This should be continued as long as necessary, as the fruit is much larger and finer flavored, and the Hovey and Albany, by this aid, may be continued in bearing until the first of July.

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**THE RASPBERRY.**—Deserves a place in every garden, and a rich border should be prepared for it, so as to be shaded from the sun after 12 o'clock. The common *Black* and *Orange*, the *Catawissa* and *Ohio* or *Everbearing*, are native varieties, and succeed with a little care, and produce abundant fruit. The *Fastolf* and *Hudson Red Antwerp* are the best of the foreign varieties. *Brinckles Orange* and a seedling variety, produced here by Mr. Frances Bulkeley, of Gadsden, S. C., are both valuable new varieties.

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**THE GRAPE.**—Of the first and greatest importance is the preparation of the soil. This should be thoroughly trenched to the depth of eighteen or twenty inches. This may be done with comparatively little labor, for vineyard culture, by the aid of a good turning plow, following in the same furrow with the subsoil plow; after which use the spade the same as in trenching. The soil best adapted to the growth of the grape is



that of a sandy or granite character, but almost any soil may be made to grow good crops with proper preparation, provided the subsoil be dry. Wet subsoils are in every instance injurious to the growth of the vine. Within a few years an increased interest has been given to the culture of the vine for making wine, and there are a number of small vineyards in our state which promise the best success. The *Catawba* is the grape principally used for wine making. The *Lenoir* and *Herbemont Madeira*, both of our own state, are excellent varieties, both for table use and wine. The *Scuppernong* is grown extensively in North Carolina for this latter purpose. It gives a wine of a peculiar rich aroma, and when we are properly skilled in the making and preservation of wines, we are persuaded that this peculiar property will add much to its reputation and value. Mr. Longworth, of Cincinnati, gives it, as his opinion, that we can make a superior wine of the *Isabella*. The *Herbemont* and *Warren* being one and the same, make mild wine equal to the best light wines of France, Spain, or Italy, and the best judges can scarcely detect the difference, when properly manufactured and kept. The *Isabella* is a vigorous grower and a most productive kind, and at the instance of Dr. Bachman, some vines were shortened in, after the fruit had been well set, and a second crop of fine bunches of fruit was the result, ripening in October. The berries of the *Isabella* are usually plucked too early. They should be permitted to hang until fully ripe, when they will be sweet and delicious. There are several other native varieties of excellence, which promise well, of which we hope to be able to speak more favorable in the future.

The vine should be enriched with ashes and decayed vegetable matter, ground bone dust and scraps of leather, which may be gathered about every town and village in the state, with manure from the poultry-yard, all of which are valuable materials, when buried about the roots. From three to four hundred gallons of wine may readily be produced to the acre, from the *Lenoir*, *Catawba*, and *Herbemont*, as they are most abundant bearers. The *Catawba*, though not so sweet as the *Isabella*, is, still, one of the richest grapes, abounding in glucose: hence its superior qualities as a wine grape. The superior specimens of wine which have been exhibited at our State Agricultural Fair, are convincing proofs that wine making is no experiment. We will not enter here upon the particular influence which would be exerted by the use of pure wine, as a means of promoting temperance, but we would most earnestly urge its claims as a promoter and preserver of life and health. Prof. Liebig says, "that as persons become older, pure wine is an important addition for preserving and keeping up the vital powers, warming and nourishing the blood, and that it is beneficial in gout and rheumatism, and all diseases of the kidneys." Plant, then, a few vines, as every person can, who has a few feet of ground, and provide your family, at least with a supply of wholesome and delicious fruit.

The rot is the principal thing to contend with in the culture of grapes. The proper enriching of the vine with bone dust and ashes, and the thorough draining of the subsoil, will all be important aids in effecting this, and when only a few vines are planted they should be protected from the heavy and drenching rains, by making a shelter, with boards on the top of the posts about two feet wide. The cuttings should

be grown at first in a trench, at a depth of eight or ten inches, and then transplanted in the vineyard. We are persuaded that the practice, as commonly adopted, of planting cuttings eighteen or twenty inches deep, is erroneous, and is a source of rot, the roots being forced to be thrown out in a soil too deep and uncongenial. Plant vines at a moderate depth, follow the suggestions of nature, and if the subsoil is properly prepared the roots will find their way, and penetrate to the required depth.

In conclusion, plant vineyards, beautiful and interesting, about your homesteads, plant orchards, rich with the apple, useful in its fruit, and glowing in its white tinged blossoms; the peach, with its lovely blossoms, warm with the breath of spring, and delicious in summer with its abundant fruitage; the apricot, the cherry and nectarines, beautiful in their early offerings; the pear, with its golden, melting fruit, always acceptable to the palate; the plum, with its rich, luscious, and abundant clusters; the fig, wholesome and memorable for its associations. Bring all these near your houses, and they will invite you to a love of home, and you will have done much to make home cheerful by enjoying these rural blessings and comforts of life.—*Farmer and Planter.*

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## ONION CULTURE.

EDITOR CULTURIST.—Can I grow onions on reclaimed tule lands? and what would be a proper preparation and culture? and at what time should I sow the seed? TULE.

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We have had no experience in the culture of the onion on tule lands. We hope some of our contributors who may have had this experience will impart it. In the mean time, we give the practice of Wm. E. Jones, of Kenosha, Wis., a correspondent of the *Prairie Farmer*. He gives the result of seven years' experience. He says the following are important to be considered and adopted, viz:

1. Ground that is gravelly should in all cases be avoided, unless the cost of removing the soil can be afforded.
2. Ground that is overrun with weeds or troublesome grasses should not be chosen until they are at first exterminated.
3. A situation that is shaded will not do; neither one that is too wet, for that will prevent working early in spring, which is essential to secure a large crop.

Another important item—the most suitable soil. It should be a light, deep, loamy one, though they will grow on soil, a large portion of which is clay; but not to a large size. The last named soil is not to be preferred, if size and quality are the objects.

I have found it important, in selecting ground for onion culture, to choose such as may be used an indefinite length of time for this purpose; by so doing the labor of first preparation is avoided each succeeding year, and each succeeding crop is more easily cultivated, provided the previous work has been thoroughly done.

**PREPARATION OF GROUND FOR SOWING.**—About the latter part of March, if the weather will admit, the ground should be manured deeply; and, if the soil be indifferent, it should have a large amount of well rotted compost thoroughly mixed in. Level it and thoroughly pulverize it. If the crop is to be cultivated to a considerable extent, the ground should be rolled; if properly done, this will add greatly to the value of the crop.

But allow me here to state that one great error among a majority of cultivators is, that they commit the seed to the ground before it (the ground) has been thoroughly prepared. Failure results often from such causes, and the cultivator condemns the article as unworthy of cultivation, or believes he must embody all wisdom and bestow the greatest care in order to be remunerated. But failures oftener result from unsuitable soil, or the bestowment of undue care, more than belongs to the natural requirements of the onion. But there are other items to be considered in the preparation of the soil. If the ground is plowed deep, early in November, it will not be necessary to plow again in the spring. This will save time, and the soil will be more thoroughly pulverized. Manure, if not well decayed, thus plowed under and mixed with the soil, will improve the crop.

**SOWING.**—Be careful what seed you sow. If you purchase it, obtain it of some reliable person, or a regular, honest onion-grower. Seed should not be over one year old, and should sink when placed in water. Sow the first or latter part of April. If the cultivation is to be extended, a simple machine or drill for depositing the seed is useful—a machine making two drills twelve inches apart, and dropping the seed in them at the same time. To cover use a hand roller, drawing it lengthwise the the drills. Let the boys do this; they are lighter and make smaller tracks than men. Get the drills straight, and be careful to keep them so. A person accustomed to it will sow three acres per day. Cultivate in drills by all means.

**CULTIVATION.**—I have heard it stated that onions planted thick will grow to no great size. The present season's experience proves the contrary. Onions that were sown thick, attained the size of twelve and one-half inches in circumference on ground that has been occupied with the crop for nine years. I think when onions have been grown on land a number of years, they will attain large size, even if thick. But it is usual and perhaps as safe to let the onions stand in rows eight inches apart. Keep them clean. No other culture is necessary. Stir the soil well every two weeks in the earlier stages of their growth, but not too closely about the roots, so as to injure the bulb. July is the most important month to the onion-grower; keep down the weeds.

**REMARKS.**—There is perhaps no crop more sure than onions. It is true they blight if neglected. The best varieties for cultivation are the red, yellow and white. The red are more generally admired; they are more hardy and grow better. The white variety requires more care in keeping, but are better for table use.

The onion-grower requires skill, which is only acquired by practice and persever-

ance. A new beginner should therefore commence on a small scale. No one should allow himself to be deceived with the idea he may become suddenly rich by growing onions.

**CURING.**—Let them remain on the ground after they are pulled, scattered about three days, then braid in wreaths two feet long; let them hang out of doors a week perhaps, and then carry into a dry cellar and hang up; they may be kept good in this manner until the next July.

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### TIME TO PLANT AN ORCHARD.

**EDITOR CULTURIST:**—In your December number, the question is raised as to the best time to plant an orchard. A discrimination, I think, requires to be made, not embraced in the answer given. I allude to the difference, as of clay or sandy soil. My first orchard planting was done in March and April, 1857. My soil is of clay, otherwise called "adobe"; when thoroughly wet it can only become dry by evaporation, and not by absorption by lower strata. If in a tillable condition, and covered with a fine surface it dries much more slowly. I supposed that our moderate winters admitted of what is considered the advantage of early planting, hence I feared that disappointment would result to my late planting as above, but was surprised that of the five hundred trees planted, but one failed to grow; they not only made a good growth the ensuing summer, but blossomed and produced some fruit. Still supposing that early planting would do yet better, in November, 1858, I planted five hundred trees more, consisting of apple, pear, plum, cherry, apricot and fig. I am not now surprised that the result has been quite a failure. The late winter rains began the last of January, and finished off in March; the water, or rather mortar, stood in the holes where the trees were planted long after it ceased raining; hence many of my trees were drowned to death, and the balance merely retained vitality, and started to grow a little, late in the fall. Fig and plum were the least affected; those most so, were cherry, apricot, pear and apple. I think the fig grows best planted early in any soil.

I suppose that early planting will do best in any soil that does not hold water. But clay lands should not be planted, or there is danger of doing so before the winter rains are over. It is best, however, to dig holes and dig or procure your trees in the early part of the winter, for as the roots cut in digging must heal before new roots can start, and this healing process requires time. Trees intended for clay land, should be dug before the winter rains, and keeled in, in sandy or non-retentive soil until spring. In the meantime, the process of granulation will be going on, and such trees, if well planted in the spring in clay, will grow well, and if the ground be in good condition, they will continue to grow until checked by autumn frosts.

C. M.

### PRUNING TO INDUCE FRUITFULNESS.

EDITOR CULTURIST:—As a novice in fruit culture, I was very much pleased with your article in the January number on root pruning, in answer to YUBA's inquiry. In that article, however, a remark occurs that to me is possessed of very great interest; inasmuch as I find many of my young trees inclined to grow wood instead of fruit. On page 321, you say: "There is a far better mode of inducing fruitfulness in trees, than by the destruction of their roots." Now, though I am satisfied, from what you have said upon the subject of root pruning, not to attempt its practice for the purpose of inducing fruitfulness, yet that "better mode" of which you speak would be very acceptable information.

AMONG THE MOUNTAINS.

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There are various modes by which the object can be secured, either one of which we deem preferable to root pruning. Their adoption may depend much upon the condition of the tree, its habit of growth, fertility and moisture of the soil and peculiarities of climate. Where the habit of unfruitfulness arises solely from an apparent exuberance of growth induced by a sterling fertility of the soil, almost any method that will detract from the effect of that fertility upon the tree will effect the object in a degree. The culture of plants, vegetables or grasses around the tree, by which a portion of the fertility of the surface soil is abstracted or kept from acting directly upon the tree growth, will almost, in all cases, cause a tree to set its fruit buds more profusely than though the full vigor of wood growth had been permitted. In a California climate, however, care should be had that the vegetation so produced does not in a too great degree abstract the moisture from the soil, to the detriment of the fullest development of the tree's fruit.

In the Atlantic states, where the rains of the season are continued into and through the summer months, seeding down an orchard to grass or clover, will, whilst it checks the growth of wood, increase the fruitfulness of the trees, without the least detriment to their vitality or health; but whether the same practice can be followed here, with no summer rains, and without irrigation and with no detriment to the fruit, remains to be determined by experiment. The probability is, that where moisture is abundant, certain crops of vegetables of low growth, can be very advantageously grown, even in our climate, among trees where the habit is a too exuberant growth of wood. The strawberry, for instance, can be advantageously used for this purpose; and, though in itself not as productive as when it occupies exclusively the whole ground, is, nevertheless, far less injurious to the orchard growth than many other crops that might be substituted. No grain crop should ever be permitted to occupy orchard ground; for, besides the tendency of all tall growing vegetation to cause the limbs of trees in close proximity to assume an upright growth, to the great detriment of their perfect symmetry, all the cereals, if permitted to mature their straw, are exceedingly injurious to trees, from the too bright and heating reflection of the sun's rays.

Another mode sometimes adopted to produce the same effect, is that of changing

the constituent food of the tree. Thus, a soil in which humus or a large quantity of vegetable matter is contained, if sufficiently warm and moist, will produce a luxuriant growth of wood over one inclining to sand or the calcareous. If to such soils, abounding in an excess of humus, a considerable addition of lime or ashes be made, the effect is to check the wood growth, whilst a greater fruitfulness is as certainly induced. All limestone lands are peculiarly favorable to the growth of the apple tree and its fruiting. Removing to a depth of four or five inches of the surface soil, and replacing it with a less stimulating one, as of sand or gravel, will also produce a similar effect; a practice, however, that is not applicable to orchard culture or tree-growing upon a large scale, from the trouble and cost attending it; but, in the garden of the amateur, it is often successfully followed.

The last mode to be described in this place is the one which, though not always the most effective, is of the easiest application, and when judiciously practiced, will, whilst it generally secures the object, work no injury either to the health of the tree or the fertility of the soil. It consists not in pruning, but *cutting-in*, or shortening the limbs of the trees at the proper season. Cutting-in the limbs of trees is practiced at different seasons of the year for three very distinct purposes. Firstly, to give symmetry to the tree; secondly, to promote the setting and growth of fruit spurs and buds; and lastly, to cause the new growth of wood to ripen fully before the autumnal frosts shall injure it. For the first, the cutting-in should be performed both in winter or early spring before vegetation starts, or upon the new wood of the present season; and, if upon the latter, then never later than the middle of June or first of July in most of our California climates.

To secure a concentration of sap, for the purpose of promoting a growth of fruit buds and spurs, cut back from the middle to the last of August, about one-third of the length of the growing wood; upon the larger and more luxuriant limbs, one-fourth their length is enough. A further observation may not be amiss here. If a more severe cutting back, amounting to an injudicious one, be given at this season of the year, instead of promoting the growth of fruit buds, an entire new growth of fresh wood is induced, which is a complete perversion of the object sought. Practice and observation alone, can render a man an adept at cutting-in fruit trees judiciously. For the perfect maturation of the season's growth, as a preparation for the frosts of winter, the cutting to the extent of one-fourth of the extreme ends of the limbs of peach and such other trees as continue in growth, made from the middle to the last of September, will cause the wood of the remaining portion of the limbs to mature and harden more fully than otherwise would be the case. A judicious cutting-in, we believe, from a long and successful practice, to be á mode to induce the fruitfulness of trees, decidedly superior to root pruning.

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THE process of solidification is being applied to sweet cider, so that five quarts are reduced to one, which becomes a jelly, and can be made sweet and liquid cider again by the addition of water.



### THE NAKED FALLOW—GOPHERS.

EDITOR CULTURIST:—Your correspondent C. M., in the December number, in an article headed "An Old Theory," has thrown out some hints, which, if acted on would be of immense benefit to the farmer on the Pacific coast.

Many a farmer has undoubtedly noticed, on plowing ground impregnated with alkali or any other salts in excess, that, after being exposed to the sun's rays for a time, the surface would be covered with a crust of said salts; hence it is undoubtedly true, that all soils would be benefited by pulverizing and being left exposed to the rays of the summer's sun, to be replenished by the great laboratory of nature of the fertilizing principle of all plants, but more especially to those adapted to the cereal class.

Hence, of what practical utility this would be to the grain farmer who has already farmed his lands with yearly decreasing yield. Take, for instance, the farmer who cultivates his three hundred acres in grain, which will require four teams to put in this crop; he will, the first season with his four teams, plow and sow the one-half of his land, and get it in in good season, so as to ensure a good crop; and the balance he could plow at his leisure before the spring rains had ceased, which would be ready to sow at or before the commencement of the ensuing rainy season; and for the second year and thereafter he would require but one-half the team and labor to get in his crop, or he would sow more than he would plow the same season.

Now the question is, would he be the gainer by adopting this course? We think he would, for the following reasons: In the first place, he would be enabled to annually get his crop in so as to receive the benefit of all our winter rains, and, however slight, would ensure him a fair crop.

Secondly, he would, by leaving the balance of his land exposed to the rays of the summer's sun, to be replenished by the capillary attraction from the subsoil and lower strata of the fertilizing principle to enrich the coming crop.

Thirdly, he would then require but one-half the animal labor and teams, and if he did not raise as much grain—which I think in many cases he would—as from planting the whole, it would be much cleaner and plumper, and hence command a better price. He would, by this method, be enabled to exterminate his noxious weeds; and, what is of more importance, he would be enabled to destroy that destructive pest to the farmer, the *gopher*, which he would literally starve out.

If our farmers do not pursue some mode to retain, rather than to diminish the productions of our lands, we shall soon be in a deplorable condition, tenfold worse than the worn-out lands of the Atlantic states, as the peculiarity of our climate would preclude us in adopting their cheap and feasible mode of clover and plaster.

And, again; by adopting this method, the farmer could better pursue a rotation of crops, and our markets would be supplied with a better article of grain, as his summer fallow, which would be the only land he would sow, would be clean, and if he sowed wheat he would not unnecessarily reap a mixture of all other grain, as he does by his present system of annually sowing all of his lands.

These, and other reasons which will suggest themselves to every thinking farmer, should cause him to change the present "skimming" system of farming, which is really impoverishing himself and his adopted state.

Plow Boy.

SAN LORENZO, Jan'y, 1860.

### GRAFTING THE VINE.

EDITOR CULTURIST:—Seeing an article in your valuable journal the past winter on grafting the grape vine, and having several hundred of the Mission variety that were unproductive, I concluded I would try my hand at it. I grafted about one hundred vines, and out of which only about one-third grew. My mode was cleft grafting, in the root, when the sap was dormant. Now, perhaps you or some of your numerous readers could suggest a better mode, where the loss would not be so great; as we are satisfied, in this vicinity, that we cannot succeed with any but the earlier varieties of foreign grapes, and many, as well as myself, would like to make the roots of our old vines available if possible. Many of those grafts which I set last winter which grew, produced some fine bunches of grapes the last summer, and of fine flavor. And out of my six hundred vines of the native variety, which are now six years old, I have never yet picked a bunch of grapes that was fit to eat. The grafts that grew all made a fine growth, and some of them quite remarkable. If we could graft the vine with the same success as fruit trees, it would undoubtedly be the best way of cultivating many of the foreign varieties of slow growth.

SAN LORENZO, Jan'y, 1860.

E. T. C.

We have grafted the vine extensively and generally with success. Our method is, in case the stock is of a smooth, straight grained growth and will split free, to cleft graft—sawing off the stock below the surface of the ground and inserting the scion wedge shape at bottom, on each side of the cleft; that is, use two scions to each cleft, as in the ordinary mode of grafting the large limbs of orchard trees, and then using no wax or grafting composition whatever; heap the earth up around the stock and scion even with the lower bud. If both scions start, one may be cut away; or, if the stock is a strong one, both may be grown. Where the stock is difficult to split, plug grafting can be practiced with success. Bore with a sharp cutting bit, one or more holes into the surface of the stock, one and a half inches deep; fit the lower end of the scion by taking off the bark and enough of the wood to enable it to fit the hole just moderately tight on being forced into it by the strength of one hand. Draw up the earth around as before, and success is almost certain. The best season for grafting the vine I have found to be just as the buds of the vine were bursting into leaf, and for two weeks afterward, the scions being retarded in growth, till time of setting, by keeping them in a cool, moist condition. For further remarks on grafting the vine, see CULTURIST, first volume.





crumbs from the door-steps, as fearless as chickens and doves. It is said to be a peculiar kind of swallow, and to be seen only in Germany, though lately some have been transported to America; but we have not heard whether they nestle as cozily under the roofs of a republican *Stadt*, as in the crannies of these old worm-eaten castles.

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**THE STORK—BEES—CHAMOIS.**—But there is one feature still more peculiar in the rural life of Germany. The kingly stork, marching like a veritable prince through his domains, is regarded with reverence and affection by all the peasantry. His nest is perched upon the topmost peak of some gable roof, and when we first saw one sitting there in all his majesty, we had no idea it was a living thing, but an ornament, with some slight pretensions to use, like a windmill or a weathercock. He is a bird of monstrous size, or perhaps appearing so from the length of his legs and neck, and the rest must of course be made to accommodate these proportions. It is with wonderful dignity and composure that they arrange their plumage and seat themselves, looking around like a queen from her throne.

They do not marry till the third year, and previous to this the bachelor storks occupy a tree by themselves, mingling very little in their walks, and observing at all times the most conventional propriety. Of course, they do not need nests till they wish to hatch young, and till this important event, they *roost*—if we may use so vulgar a term in speaking of their highnesses—in groups wherever it is convenient. Only one or two eggs are hatched at a time, and their love for their little ones is the same which characterizes all parents, whether among princes or peasants, kingly storks or turreting sparrows. But they spend only the summers in Germany, going as far south as Egypt for their winter. In their arrangements for going and coming they are remarkably punctual, and in one farm house at the north we are told that in twenty years they had not noticed the variation of a day in the time of their arriving and departing. Of the evening of the twenty-sixth of August they meet and discuss their affairs. On the twenty-seventh they may be seen walking quietly about, eating and beautifying their plumage, and however early one may rise on the morning of the twenty-eighth, there is not a stork to be seen. They have gone to the land of Canaan—to the land of the corn, the vine and the olive.

The hum of the busy bee is not often heard in the regions where the people live in villages, but among the farm houses of the north and south they gather honey from every opening flower, and one may at any time be regaled by the delicious fruit of their labors.

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**THE GOAT—THE CHAMOIS—THE DONKEY.**—We often see goats kept in villages for their milk, and in mountainous regions they run about on the hills and *browse*, thus causing little expense for their keeping and being of great service. The chamois, too, is sometimes tamed and fondled like a dog; but in this state he loses his most interesting characteristics, grace and agility, though these are said to be the

effects of culture rather than the gifts of nature. We can scarcely believe them when they tell us of the pains of the mother to teach her offspring to leap, and various arts to avoid danger; yet they assert that daily lessons are given during all their youth, and they are made to spring back and forth from rock to rock, first after the example of the mother and then alone, the distance being gradually widened, until they can bound with facility over ravines and cloven ledges as only a chamois is known to do, and we doubt whether any amount of teaching would give another species of animal the same grace and power. With the same pains they are taught to elude the hunter, and show wonderful capacity in learning and practicing all manner of deceptions. These, one must learn in order to hunt them successfully, and there is seldom a season that hunters as well as chamois are not left bleeding upon the mountains. The sport is so exciting in tracking and following them, that impossibilities are attempted, and the sportsmen sometimes persevere with the certain knowledge that death will be the consequence. But to see the chamois confess himself conquered and resigned to death, is almost as affecting and sorrowful as to see a human being. When he has once concluded that it is useless to resist, he lies down and without a struggle receives the death shot—his bright eyes grow dim, with a mournful expression of reproach and regret, but still saying, "I fought bravely, and will die a hero's death."

But we have no pleasanter associations with any member of the animal world than with the patient donkey. Fully have we learned to appreciate his virtues, for many an old castle and beauteous landscape would have been a sealed book to our eyes, had not the highest mountain and narrowest pathway been made thus accessible. We cannot understand why they have been ever such objects of contempt and ridicule, for they are not so very ill looking, even with their short legs and long ears. They are a pretty brown color, and form a truly picturesque scene with their scarlet and gay colored saddles and bridles in the deep forests, with a troop of ladies for their *knights*. How long and patiently will they climb and clamber, and though we have given them a thousand times occasion to exhibit all their refractory propensities, by misguiding, tumbling off and pulling them over, yet never did we see in them anything but the most delicate and honorable kindness! Only once have we heard a donkey bray, and this was horrible enough to be sure; but their vocal organs are not often exercised, and even the braying is no worse to hear than the howling of a dog; and when dogs are compelled to menial labors, as they here often are, they are as menial-looking as a donkey, and inspire no more respect. In the streets of German towns, we have seen a woman and a dog harnessed together to draw a cart, and in the fields a woman and a donkey, and a woman and a cow, to draw a plow; and women are looked upon with almost as much contempt.

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THE VINEYARDS.—We saw at another time another evil consequence of women laboring in the fields. In a family where we dwelt when the vintage season arrived, the women were not accustomed to work out doors, except to gather grapes, but for this purpose they all went forth. About the best time to commence the vintage,

there is often great difference of opinion. The longer the grapes hang out the better the wine is said to be, and often they are permitted to remain upon the stocks till snow is on the ground. But it is cold and cheerless work to cut them at such a time, and women protest against it. So for two or three weeks we heard the most serious family disputes—the men saying the time should be put off, and the women saying it should not, as the year before they had all been sick in consequence of cold, and wet, and exposure; till a family, ordinarily most harmonious and agreeable, was converted into a bedlam. We took occasion to say, if the women did none of the work they would have no right to a voice in the matter, but as they were compelled to do the principal part of the labor, it was right that they should have some decision about the time. As it happened, for once the women prevailed, and the weather was delightful; and it so happened also that if the men had prevailed, they would have had to gather grapes in snow-drifts, at great risk and exposure. Three successive days we went into the vineyards, not only to eat but to work, and learned that it was really very hard labor, as the stocks are never more than three feet in high, and we must stoop all the time while cutting. Yet from one of these stocks we have cut fifty large bunches of grapes. No vines are permitted to run. All the nourishment is concentrated in this one stock, and for this reason it is thus fruitful. Never did we know anything of the real deliciousness of grapes till we ate them upon the sunny side-hills where we cut them with our own hands. But how soon are the beautiful clusters spoiled in the great tubs into which they are immediately thrown, where they are pounded till the juice is expressed, and where it looks as if the pigs would loathe it!

Those who own vineyards do not even trim the vines themselves. A vine trimmer is appointed by government, who keeps watch over their growth, and comes with his shears to cut even the few which may be running over the sides of the house and fences. Where it is shady he cuts away the leaves, that the grapes may have the full benefit of the sun; and where it is too sunny he leaves them to shield the fruit from the too piercing rays. The trimmings he carries away as part of his reward—the leaves to fodder the cow, and the sticks to burn.

We do not see any reason why grapes should not grow almost anywhere in New England in sunny places, if the same pains were taken to give them nourishment and care, and almost every family might have a few without trespassing at all upon the room needed for the necessaries of life. There is a "sunny side" to almost every cottage, and for a few it would not be too much labor, or in any measure unwomanly toil, for ladies to train and trim them; and during the summer they would be beautiful, and during the autumn what a delicious treat; and though we think our father land excels all others in what is glorious and good, yet we do not think them quite perfect.

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### PRUNING THE VINE.

EDITOR CULTURIST:—I have a few more than one hundred vines of choice, foreign varieties, two years old from the slip. Nearly all of them bore the last summer from one to three bunches of grapes, and made a vigorous growth of wood. I am not experienced in grape culture, and desire certain information relative to the proper time of pruning my vines with the view of obtaining certain results. Can I prune them at one and the same time, and serve the double purpose of securing cuttings in good condition for planting, and promote their fruit bearing in the highest degree. The locality I have chosen for experimenting with the vine, I regret to find somewhat liable to late, spring frosts, which for two seasons have slightly injured the young growth. Will pruning at any particular season, or in any certain manner, tend to retard the early starting of the vine, with a view of escaping the effects of late frost? By giving an early answer to the foregoing inquiries, you will greatly oblige at least your humble servant

AMONG THE FOOT-HILLS.

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The inquiries of our correspondent came to hand just a little too late for insertion in our January number. He will, however, find his queries answered in the excellent essay of Mr. Flint, on the Horticulture of California, pages 295 and 296. Experience has, we believe, already demonstrated that for the pruning of the vine with a view of securing the cuttings in the best possible condition for future growth, throughout the greater part of California, that season is the best immediately succeeding the fall of the leaf; the only exception to this rule being in those localities where the extreme cold of winter might injure the growing vine at the point of cutting. If such localities there are in any of the elevated districts, it would be better to defer the time of pruning till the approach of spring.

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PEACH ORCHARDS CHANGED TO ALMONDS.—EDITOR CULTURIST.—The near approach of the limit of profitable peach orchard culture, has led me to consider the most desirable mode of changing that investment. *Budding with almonds* has occurred to me as the most desirable method of arriving at this result without great loss of time and expense. I fear our tariff of labor will, for many years, forbid dried fruits, or the culture of any crop that requires large and rapid labor. The almond culture appears to me most free from these evils; but the points, Mr. Editor, in which I wish to be enlightened, either by yourself or some of your correspondents, are first, as to their liability to suffer by the early frost; second, if the care-taking and pruning is as troublesome as that of peach culture; third, the expense and labor, the method of harvesting the crop; fourth, how late may they be left on or under the tree? An early reply will oblige your correspondent

UP COUNTRY.

## SINGULAR ILLUSTRATION OF INSTINCT.

**T**HE surprising faculty of vultures in discovering carrion has been a subject of much speculation, as whether it be dependent on their power of sight or of scent. It is not, however, more mysterious than the unerring certainty and rapidity with which some of the minor animals, and more especially insects, in warm climates, congregate around the offal on which they feed. Circumstanced as they are, they must be guided towards their object mainly, if not exclusively, by the sense of smell; but that which excites astonishment is the small degree of odor which seems to suffice for the purpose; the subtlety and rapidity with which it traverses and impregnates the air; and the keen and quick perception with which it is taken up by the organs of those creatures. The instance of the scavenger beetles has been alluded to; the promptitude with which they discern the existence of matter suited to their purposes, and the speed with which they hurry to and from all directions, often from distances as extraordinary, proportionably, as those traversed by the eye of the vulture. In the instance of the dying elephant referred to by me, life was barely extinct when the flies, of which not one was visible but a moment before, arrived in clouds and blackened the body by their multitude; scarcely an instant was allowed to elapse for the commencement of decomposition; no odor of putrefaction could be discerned by us who stood close by; yet some peculiar smell of mortality, simultaneously with departing breath, must have summoned them to the feast. Ants exhibit an instinct equally surprising. I have sometimes covered up a particle of refined sugar with paper on the center of a polished table, and counted the number of minutes which would elapse before it was fastened on by the small black ants of Ceylon, and a line formed to lower it safely to the floor. Here was a substance which, to our apprehension at least, is altogether inodorous, and yet the quick sense of smell must have been the only conductor of the ants. It has been observed of those fishes which travel overland, on the evaporation of the ponds in which they live, that they invariably march in the direction of the nearest water, and even when captured, and placed on the floor of a room, their efforts to escape are always made towards the same point. Is the sense of smell sufficient to account for this display of instinct in them; or is it aided by special organs in the case of the others?—*From Sir J. Emerson Tennent's Ceylon.*

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**CLEANING SEED WHEAT.**—I met with several farmers during my late trip to Canada, who thanked me for publishing the way to clean chess out of wheat. One old man said, "Ah mon, you did us a good turn by learning us to clean chess out of wheat. I had been sowing and raising chess for forty years, but I read your plan in the *Montreal Witness*, ten years ago, and now neither I nor my neighbors raise any more chess."

JOHN JOHNSON.

## DEGENERATION OF BEES.

ARTICLES occasionally appear in the agricultural journals, upon the "Degeneration of Bees." Some writers attribute this want of continued success to breeding-in-and-in, and advise changing stocks with neighbors. Others state that swarms from old stocks have become so dwarfed that they lack strength, energy and numbers to secure sufficient stores to maintain themselves, and consequently must perish, and also affirm that this degeneration goes on with almost mathematical regularity from generation to generation.

An examination of the natural history of the bee makes one receive the foregoing with much doubt.

*First*—as to breeding-in-and-in. In most thinly settled parts of the country, and where few bees are kept, there are generally wild bees enough to prevent, with considerable certainty, in-and-in-breeding. Where many bees are kept there can be no danger from this cause. Those persons who take enough interest in their bees to change stocks with neighbors to improve the breed, will undoubtedly give their bees all the attention necessary to success, and they would, I think, succeed just as well without troubling themselves about the ill effects of in-and-in-breeding.

*Secondly*—Dwarfed bees can only be produced from old brood comb, the cells being smaller from the number of cocoons contained. However much dwarfed a new swarm from an old stock may be, unless they, in building new comb, build it of reduced dimensions, the offspring of their queen will be full size. I have never seen it mentioned that any one ever saw a *new comb of reduced sized cells, or a dwarfed queen*. Dwarfed queens are not produced. It is almost positively certain that only one queen is ever produced from a cell. After the queen is hatched the cell is almost entirely destroyed. After the swarming season, only a trace of queen's cells can be found, so that we can reasonably conclude that the young queens, hatched the following season, emerge from newly formed cells. The queen cannot, in new comb, produce dwarfs. The queen is impregnated out of the hive, so that dwarfed drones from her hive are not likely to injure the race. Superior strength probably rules with bees as much as with animals. We may conclude that dwarfage comes entirely from very old hives, and that with the death of the bees that have swarmed from an old stock, ends the dwarfs in the new hive.

The treatment of weak swarms, whether from old dwarfed or young stocks, has often been given in the *Country Gentleman* and *Cultivator*, and it is an important question in bee culture. A weak colony made strong by proper management, is just as good as a colony originally strong.—*Country Gentleman*.

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AN INFERNAL MACHINE.—A French farmer, proud of some turnips he had raised, sent one of large size to Louis Napoleon, recommending it for soup. The post office officials thought the packet was an "infernal machine," and the poor farmer, after being arrested, had hard work to explain to the contrary.



## ROOT PRUNING.

EDITOR CULTURIST:—In an article in the January number of the CULTURIST, headed "Root Pruning," you refer to my experience, in support of your views on the subject. I am sorry to say that I differ with you. I have practiced root pruning, and am decidedly in favor of the process, under proper circumstances. As you know, the soil of my garden is a rich, alluvial loam, free of alkali, and needing no irrigation, and in it trees grow with great rapidity. When setting out my fruit trees, I had no experience in California culture, and therefore set them too close to each other. The result has been that, for two or three years past, I have been compelled to remove some of the dwarf pear trees, the latter having grown so rapidly as to overshadow the former. The trees thus removed had grown to a pretty good size, some of them measuring three inches in diameter at the root. The work was done with care, injuring the roots as little as possible; still, the process gave them a severe "root pruning." Notwithstanding their large size, they had not borne any fruit previous to their removal; but since that they have borne large crops. The effect was to check the growth, and to cause the tree to send out numerous short spurs, well supplied with fruit buds. Of course, their tops were pruned freely at the time of the removal. The process does not appear to have seriously injured the trees, as the greater part are now in vigorous growth, as much so as they ought to be to fruit freely.

Many of my fruit trees, in consequence, as I believe, of the luxuriance of their growth, have borne little or no fruit; and, having thus ascertained that "root pruning" was a successful mode of bringing such trees into bearing, last spring I pruned the roots of a large number. The way it was done was this: A trench was dug around the trees, about two feet from the body, about two feet deep, cutting off the roots that extended that distance with a sharp spade, and then the spade was run under the tree to cut off as many roots as possible. The effect upon the growth was very decided; with a few, the growth was almost entirely stopped; a few others were apparently unchecked; while the greater portion were checked to such an extent as to cause them to throw out numerous fruit spurs—and I have no doubt they will all bear abundantly this year.

When trees grow luxuriantly, the tops are usually pruned very freely, and consequently, the roots, if untouched, are in excess; that is, they supply an excess of nourishment, which causes the trees to send up numerous straight shoots bearing no fruit. Now, reason teaches us that the roots should be pruned, at least to an equal extent with the tops; and when the tree is growing very freely, I think they should be pruned rather more, so as to check the growth to a limited extent. After a tree begins to bear freely, then this excess of nourishment is taken up by the fruit, and the tree does not make such a luxuriant growth of wood; and such trees usually continue in bearing, and of course, need no root pruning. This check in the growth, whether caused by root pruning or the bearing of fruit, does not necessarily cause a permanent injury to the tree. I hope the next time you are in our city, you will give me a call and inspect my root pruned trees.

E. B. C.





foot in the center. When the sod is all out, and piled on both sides one foot higher on the outside than inside, jump down into the ditch and throw out with a long handled, round bladed shovel, two shovelings of soft mud into the space between the sods, which makes it water tight and completes the levee. The sods, which are about ten inches square and three feet in length, are taken out of the ditch and put upon the levee with nothing but the hook.

The sluice boxes can be put in before or after the sod is taken out; they should be put in at the lowest tides in order to secure the most effectual drainage. The sluices on my farm are about one foot in depth; the best are made of two inch red-wood plank, from ten to twelve feet in length; the best working size for a sluice is eight by twelve inches in the clear, or inside; the clapper, or door, is put upon the outside end with two strap hinges; it is made of a piece of two inch plank. Before the door is put on, the end of the box or sluice is beveled to an angle of about forty-five degrees. On the outside of the clapper is attached a weight sufficient so that when the tide comes in, the clapper is prevented from floating—soon, however, the pressure on the outside is sufficient. Two spadings from the bottom of the ditch may now be thrown out, which completes what may now be called a good ditch. The ditch and levee together measure across, thirteen feet, the levee on the outside being about three and a half feet in height, and on the inside about two and a half feet.

I will have in two weeks from this time about one mile of such levee as this finished—weather permitting—and in the meantime, Mr. Editor, I shall be much pleased to show to any gentleman who will call to see me, an insight into the tules, that will set down and take a good dinner with me as a recompense. Such a ditch costs about two dollars per rod, and from three to four dollars if it passes through timbered land. About the first of May I shall be ready to burn off my land; this is done by simply setting fire to the sod in several places; and in July, under ordinary circumstances, I shall have one hundred acres ready for cultivation. On the burnt ground, the tides—all fresh water—are permitted to come in and flow the land for two or three tides, which leaches the ashes; when this is done the land is ready for planting or sowing. Some are opposed to burning; they say the ground is too low already; that to burn the sod, which varies in depth from six to fifteen inches, is to ultimately ruin the land, or at least, injure it seriously; but this is the statement of those only who have not tried the experiment.

The land that has been drained on Sherman Island, broken up and put under cultivation without the process of burning, has taken three years for the sod to rot; and when the ditches got foul so as to impair the drainage, the sod would suck up the water to that degree as to drown or destroy the crop, and in a very dry time, when the river is low, vegetation grown upon the sod would suffer for want of sufficient solid soil. I find that the sod land of the tules invites vermin of all kinds that are small enough to shelter in it. The last crop of potatoes of the season upon such land is inferior, and badly eaten by field rats. Now, how does it stand with burnt land? Mr. Philip Beasley burnt off a piece in the fall of 1858. In the spring of 1859 he put a part in wheat, the rest to potatoes. With regard to the wheat raised,

there is but one opinion ; all who have seen it pronounce it the best in the state. Mr. Runyon, at the head of Steamboat Slough, who took the State Agricultural Society's premium for the best wheat, I am credibly informed acknowledged the tule grown wheat superior ; whilst the yield went hard upon one hundred bushels per acre. The general opinion here is, that it would have yielded one hundred bushels per acre, if it had been properly threshed. The variety grown was that known as the Golden Chaff, the grains of which are nearly twice as large as were the grains of the seed sown. I herewith send you the samples of the wheat and await your judgment. We, upon the tules, want fair play, but ask no favors, though all our honors belong to us, and we wish to let the public know what a swamp that is drainable is worth in California.

Mr. Beasley's potatoes were very fine ; the first shipment he made to San Francisco were bought up at once at an advance of half a cent per pound above the then market price, the purchaser engaging all he had. The yield was one hundred and fifty sacks to the acre. In flavor they are superior to the Bodega. I have not now a sample of his potatoes, but I will send you some of my own, grown on the same kind of land, and of a crop that was planted on the fifth of August—they were full grown on the fifth of November. This is at the rate of three crops per year, and allowing the land to rest three months at that. The upland farmer may say I am crazy ; but I am in good health, and I know the above statement to be true to the letter. As an incident to the culture of potatoes I will state, that when Mr. Beasley went up the river to get a vessel to take his potatoes to San Francisco, he found a captain of a vessel who was so incredulous in believing the probability of potatoes being raised upon tule land, that he refused to be hired. Now the captain was not singular in this, being of the same opinion with some others ; that is, that all tule lands are alike, or alike submerged by the waters of the river. Now let us go no further up than Sacramento city, and the river there has a rise of thirteen feet. At the head of Sherman, or Delta island, it is only one twenty-sixth part of thirteen feet, which is just six inches. The cause of the water being lower here at the delta, than at the city is, that it is taken off by three great exhausters—the Georgiana, Jackson and Three mile sloughs ; below these, of course, there is far less danger of overflow, so that the nearer you get to the mouth of the Sacramento the safer you are. I had intended to say more upon the burning of tule lands, but I find my article has already attained an undesirable length.

Yours &c.

THOMAS CUBBINS.

### FLIGHT OF THE BEE.

**H**OW FAR DO WORKER BEES, DRONES AND QUEEN BEES FLY FROM THE HIVE I perceive that there is quite an interesting and animated discussion going on in your paper on the question, "How far will a bee seek honey?" The question might be extended, namely—how far will the inmates of a hive go for honey and other purposes? There is a difference of opinion among apiarians on the subject,

and to ascertain the truth is a difficult matter. Some think a bee will go from ten to fifteen miles for honey; others assert that two or three miles is the utmost extent of her wanderings; and others, again, are of the opinion that a circuit of a quarter of a mile around the hive is all the ground she occupies for pasture. I believe a worker bee will sometimes fly quite a distance from home. We often see bees in isolated places, far from the dwellings of man. The blossoms of the Linden, the Tulip tree, and other flowers rich in honey, attract bees from ten to twelve miles; but ordinarily I think they will not go farther than a mile. It is not probable that the drones will go far from the hive. They generally amuse themselves from twelve to three o'clock in the afternoon in making short excursions around their homes. They are gentlemen at leisure, have no particular care and anxiety about the welfare and prosperity of the family, and hence they are not at all ambitious to take a journey into a far country! But in reference to the queen, it has been proved that for the purpose of impregnation she flies quite a distance. Mr. O. Rothe, a German apiarian, has made an experiment on this subject which I consider altogether conclusive and satisfactory. He had in an isolated place only Italian drones, and yet the young queens he raised were often spurious or illegitimate. Even his young German queens, which were in a straight line of ten miles from his dwelling house, must have been after his Italian drones, since they have brought forth Italian bees. We must, therefore, not be surprised if early in the spring young bees become fruitful before we perceive drones among our own bees; they have merely visited a distant neighbor of ours who fortunately raised drones eight or ten days earlier than we did.—*Country Gentleman.*

### GRAPE CUTTINGS—RAISINS.

EDITOR CULTURIST:—The business of vine planting, in our variable climate, seems yet to be an experimental one. Most of those engaging in grape culture have not the experience of other California culturists for a guide; hence an answer to the following queries, might interest your many readers—certainly it would *one of them*.

In the selection of grape cuttings for planting, would you choose that short jointed, fine wood from our higher plains and foot-hills, or that more luxuriant growth from the moist, black soil of our river banks? What is the proper length of a grape cutting, or, if it is variable according to soil, what rule determines its length? What is the best variety of grapes for raisins? Please find enclosed a small branchlet from a large cluster of White Muscat, of Alexandria grapes. They are a little dried and appear to me to be very good raisins. They were presented to me by Mr. Rich, who resides some six miles from the city, on our dry, sterile looking plain towards Stockton. Perhaps you may recollect Mr. R. presented some good specimens at the fair. The specimen sent was dried by suspending the branches on a nail in the kitchen.

Yours truly,

J. R. RAY.

SACRAMENTO, Jan'y 13.

A very fair specimen of raisins, and only wish we had a few hundred pounds more of them. That the raisin grape can be raised to perfection in many localities of our state, has already been clearly demonstrated. It now only remains with the cultivator, to ascertain and put in practice the most approved methods of drying the grapes, and he is at once the producer of an article that has the world for a market. Several varieties of the Muscat family make good raisins, and certain localities will ere long be as famous for their raisins, as others will be for their wine product.

In procuring grape cuttings, the best culturists recommend fully matured and short jointed wood, and in theory the practice would seem to be irrefutable; but our own experience has led us to care but little for theory in this instance. If you take long jointed cuttings from the exuberantly growing vines of the lower valleys, and grow them in the higher and drier altitudes of our state, they will produce short jointed vines, and *vice versa* of cuttings grown on high grounds and transferred to the valleys. In either case the future growth is governed by the conditions of soil and culture. The only difference we could ever discern was this: That short jointed wood gave out the most roots, as they start from around the joints rather than at a distance between them. This only occurs, however, when the cuttings, long or short jointed, are of equal length, and all but the end bud placed beneath the soil. In regard to the proper length of cuttings, a difference of opinion exists. They can be of all lengths, from the single bud or eye, to three and even four feet in length, depending much on the mode of planting them. If cuttings are planted out perpendicularly in the soil, there can be little or no advantage in allowing them a greater depth than the warmth of the soil will favor the emission of roots therefrom, and this will depend entirely upon the nature and conditions of the soil and the effects of climate upon it. The subject of long or short cuttings was discussed at considerable length in volume one of the CULTURIST.

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A RUSSIAN HOT HOUSE.—Bayard Taylor thus describes the magnificent greenhouse, which the Czars maintain for the production and growth of tropical and other exotic plants, amidst the snows of Russia. "The botanical garden, in which I spent an afternoon, contains one of the finest collections of tropical plants in Europe. Here, in latitude sixty degrees, you may walk through an avenue of palm trees sixty feet high, under tree-ferns and bananas, by ponds of lotus and Indian lilly, and banks of splendid orchids, breathing an air heavy with the richest and warmest odors. The extent of these giant hot houses cannot be less than a mile and a half. The short summer and long, dark winter of the north requires a peculiar course of treatment for these children of the sun. During the three warm months they are forced as much as possible, so that the growth of six months is obtained in that time, and the productive qualities of the plant are kept up to their normal standard. After this result is obtained, it thrives as steadily as in a more favored climate. The palms, in particular, are noble specimens. One of them (a phoenix, I believe) is now in blossom, which is an unheard of event in such a latitude."

## STRAW AS A FERTILIZER.

**A**N improvident and general waste of the straw of our cereal crops, is too nearly a ruling feature of California husbandry. In all parts of the state—with few exceptions—where the raising of grain is the main agricultural pursuit, immense quantities of straw are annually consumed by fire; a most ruinous course so far as it affects the future fertility of the soil. The practice of burning the straw, seems to have grown out of the necessity of removing the vast quantities that annually accumulate around the threshing grounds; for either it must be burned or present large, unsightly heaps of a slowly decaying vegetable substance, unfit even for manure until after four or five years of decay, and then but imperfectly. To spread the straw upon the land to be plowed under, previous to decay and decomposition, as a manure for a succeeding crop, is found to be a bad practice in this climate of excessive aridity, where vegetable matter seems never to decay, even if mixed with the soil.

Some plan, other than burning, by which a more perfect and rapid decomposition of our great straw piles could be effected, would be a desideratum; and it now appears as though a method had been hit upon to effect it. Mr. Beardsley, of Suscol, proposes to so locate the straw piles from the threshing machine, that they occupy positions in the field where a stream of water can be turned upon them sufficient to entirely saturate the whole, as soon after the threshing as possible. If water is not then available, with the straw piles in low situations, plow a few furrows that, on the first flow of water from the autumn rains, may convey the surface water to them, and once completely saturated from the bottom, decomposition in the very best manner, for the production of the largest quantity of manure is rapid and complete. The reason why the rains of autumn and winter are not sufficient for the wetting is, that large bodies of straw effectually shed a large proportion of the rain that falls upon them and they are consequently not made sufficiently wet; but turn a very small stream of water upon the ground on which they lie, and capillary attraction will raise it through the entire mass, even to the very loose straw upon the top and sides.

A single season is found amply sufficient to rot the straw as effectually as four years by the ordinary natural process. A small quantity of the surface straw after the bulk of the heap is sufficiently decomposed, can then be burnt off, or removed and placed in pile to be acted upon by a like process. In this way the straw of one season can be made available the following summer as a manure, and returned to the land, a practice that should be adopted in preference to burning, by every one desirous of retaining the present fertility of his soils. "What shall we do with our straw stacks?" is the question lately put to the editor of the *Wisconsin Farmer*; and he answers in this wise:

"Why, sir, burn them, of course, like a — fool! That is *one* method, at least, and we are sorry to know that the number is not inconsiderable of those who by their stupid practice fully entitle themselves to the unpleasant epithet we have felt bound to apply to that class of farmers. 'But why not burn our straw? certainly that is



the *cheapest* way to dispose of it.' Well, there is one great reason why you should not, and that is, *because it is straw*—contains the *elements* which *make straw*—and is therefore *capable of being made up into straw for succeeding crops*.

This idea, that constant cropping, without ever restoring a single particle of the substance of the crop to the soil again, may be kept up 'world without end' is certainly the most ridiculous, stupid notion that ever found even a momentary lodgment in any head with a thimble full of brains.

Crops growing less and less every year, until they are already so meager as to carry disgrace with the figures, and yet this remarkable question, 'What shall we do with our straw stacks?'

But then, even the query is a ground for hope, since it implies, at least, some uncertainty as to the propriety of *burning*! We will, therefore, smother our indignation as well as we may, and proceed to answer it plainly and fully.

1. We apprehend that, by those who have much stock to winter, a goodly portion may be economically used for food. The season is likely to be pretty severe—at least we have no good reason to hope for a very mild winter—and fodder will be unusually scarce. Moreover, the straw of this year is unusually good, so that if properly prepared, sometimes by salting with a weak brine, but chiefly by cutting up, moistening with water and sprinkling with bran, it will not only be eaten with a relish, but really prove nutritious and wholesome.

2. A still larger portion may be used for the *bedding* of stock, and thus serve the double use of affording comfort to them, and of saving much valuable manure, liquid and solid, which would otherwise be lost. Don't be stingy of it, but use as much as possible in this way, carefully removing it when wet and supplying its place with fresh and dry.

3. What cannot be used as above, either cart out upon your fields to be plowed in the spring, or compost—of which more another time—with alternate layers of muck or rich, porous soil until pretty well decayed, and then cart it out. This is what we used to do with our straw stacks; the end being never to 'get rid' of, but to save them for after use. If any man knows a better plan let him tell it." II.

## ART, SCIENCE AND INVENTIONS.

PERPETUAL MOTION—AT LAST.—About six years ago, we published the first description of a machine, invented by Mr. James G. Hendrickson, Freehold, New Jersey, "to go of itself." A model, which Mr. Hendrickson had made after patient whittling for forty years, was brought into our office, and we found that it would go without any impulse from without, and would not stop unless it was blocked. The power was self-contained and self-adjusted, and gave sufficient force to carry ordinary clock-work without any winding up or replenishing. In short, we saw no reason why it would not go until it was worn out. Our announcement of the fact brought out a great deal of ridicule; the incredulous pointed at all of the projects to obtain

a perpetual motive power which had failed in the past, and predicted the same disgrace to the new invention. Many scientific gentlemen visited it, and although they could not dispute the fact that it was "going," they nearly all attributed the movement to some hidden spring or ingenious trickery. The inventor was an old man, who had spent his whole life in pursuit of the object he had now attained. He had become so much accustomed to ridicule, that he was very patient under it; and the only reply he made to the cavilers who pronounced the thing impossible was—"but it does go!" The notice which we printed attracted the attention of the curious, and for the first time in his history, the inventor found a profit in his handy work. He was invited to be present at various fairs and exhibitions of new inventions, and wherever he went his machine formed one of the chief attractions. Science, however, turned up its nose at him, and determined to put him down. The professors were all against him, and as they had pronounced the whole thing a humbug, they were determined to prove the truth of their assertion. Accordingly, Mr. Hendrickson was seized at Keyport, N. J., for practicing "jugglery," under the "act of suppressing vice and immorality." At the trial, several builders, millwrights, engineers, and philosophers were called, and testified positively that no such motive power as that alleged could drive the machine, and that there must be some concealed spring within the wooden cylinder. There was no help for it; and the imposture must be exploded. An ax was brought, and the cylinder splintered into fragments. Alas for the philosophers, there was no concealed spring, and the machine *had gone of itself!* But alas, also, for poor Hendrickson, the machine would go no more.

With trembling hands he again resumed his spectacles and his jack-knife. His model once more completed, he had a new machine constructed of brass, hollow throughout, so that the eye could examine all its parts. This was brought to our office nearly two years ago, when we noticed it once more, and gave to our readers some of the facts we have now recalled. The inventor was trying to secure a patent for this discovery, but the work went on slowly. The Patent Office required a working model to test the principle, and one was sent on to Washington. The moment the blocks were taken out, the wheels started off "like a thing of life," and during ten months that the model remained in the Patent Office, it never once stopped to breathe. The inventor had perfected two machines, and made a very comfortable livelihood exhibiting them, prosecuting his efforts meanwhile to secure his patent, intending to apply the power to clock-work, for which it is peculiarly well adapted. Age crept upon him, however, before this point was reached; his highest art could not make his heartbeatings perpetual; and last Saturday afternoon he breathed his last, in the old homestead at Freehold. He had been so much persecuted by the incredulous, that he had provided a secret place beneath the floor of his shop, where his last two machines were deposited. It was in the form of a vault, covered by a trap-door, which was locked, and the floor so replaced as to avoid suspicion. After his last illness commenced, he made known this secret to his family, who examined the spot carefully, and found the contents exactly as described. The night after his death, the shop was broken open, the floor taken up, the trap-door pried off, and both



models stolen. It is probable that the family in their visits had not taken the same precaution as the inventor, and some prying eyes had discovered the secret. Fortunately, the drawings are preserved, and there is a little machine, one of the earliest made, now running in Brooklyn, where it has kept up its ceaseless ticking for nearly six years. Mr. Hendrickson leaves a family of four sons and four daughters, all of them, we believe, given to inventions. Had he died ten years ago, how emphatically would it have been said that his life has been wasted in "the hopeless effort to obtain perpetual motion."—*New York Journal of Commerce*.

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**IMPORTANT DISCOVERY.**—Quite recently, while walking in the garden with the Hon. J. W. Fairfield, Hudson, N. Y., he called my attention to the small stakes, which supported the raspberry canes. The end in the ground, as well as the part above, was as sound and bright as if lately made, but he informed me that they had been in constant use for twelve years! Said I, "Of course they are cyanized?" "Yes," he replied, "and the process is so simple and cheap, that it deserves to be universally known, and it is simply this: One pound of blue vitriol to twenty quarts of water. Dissolve the vitriol with boiling water, and then add the remainder."

"The end of the stick is then dropped into the solution, and left to stand four or five days; for shingle, three days will answer, and for post, six inches square, ten days. Care is to be taken that the saturation takes place in a metal vessel or keyed box, for the reason that any barrel will be shrunk by the operation so as to leak. Instead of expanding an old cask, as other liquids do, this shrinks them. Chloride of zinc, I am told, will answer the same purpose; but the blue vitriol is, or was formerly, very cheap, viz., three to six cents per pound."

Mr. Fairfield informed me that the French government are pursuing a similar process with every item of timber now used in ship-building, and that they have a way of forcing it into the trees in the forest as soon as cut, ejecting the sap and cyanising it all on the spot. I have not experimented with it, but Mr. Fairfield's success seemed to be complete. The process is so simple and cheap as to be within the convenience of every farmer, and gardener even, and I therefore thought it so valuable as to warrant a special notice of it.—*R. G. Pardee*.

At a recent meeting of the Farmers' Club, in Hudson, N. Y., one of the members exhibited a post which, previous to being placed in the ground, had been soaked in a solution of blue vitriol—one pound of vitriol being used to twenty quarts of water. The post was pine, and when taken up was as sound as when first put down, eight years since. This solution is good for all kinds of timber exposed to the weather—spouts, shingles, bean poles, grape vine stakes, etc.

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**VINEGAR IN TWENTY-FOUR HOURS.**—The whole philosophy of the manufacture of vinegar, is included in the word *oxydation*: the alcohol contained in cider, beer or wine, combining with the oxygen of the atmosphere, becomes acetic acid, which in a diluted state is vinegar. The methods usually pursued in the domestic manufacture of this article, are, to say the least of them, susceptible of improvement. The

conversion of cider into good vinegar, by exposure to the air in casks, requires weeks and even months to accomplish ; because, only a *small surface* is exposed at one time to the oxydizing action of the atmosphere. By exposing a larger surface of the liquor to the atmosphere, oxydation takes place with corresponding rapidity, and the process may be completed in from twenty-four to forty-eight hours.

The method of accomplishing this rapid acetification, which has long been known to scientific men and manufacturers, may be pursued without difficulty in private houses as follows: Take a clean flour barrel, and bore auger holes all around the sides, and in the bottom ; set it over a flat tub or open cask, and fill it light with beach shavings which have been soaked in vinegar. On the top of this barrel, which is open, lay two strips of wood, and resting on these, a pail filled with cider, beer or the like. Procure twelve or fifteen lengths of cotton wicking, about thirty inches long, which, after dipping in the liquid, arrange around the sides of the pail at regular intervals so that one end of each wick will be hanging in the cider and the other one hanging down outside and below the bottom of the pail. By means of these wicks, the pail will gradually be emptied of its contents, which trickling over the shavings will be exposed to the air, absorb oxygen, and finally be received in the tub beneath. By returning the liquor into the pail above, and suffering this trickling process to be repeated two or three times, a splendid vinegar will be obtained. The whole secret of the process lies in the mechanical increase of surface accomplished by the shavings.—*Scientific American*.

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**STEAM ON COMMON ROADS.**—In England, where the turnpike roads are well made and kept in good repair, by somewhat heavy rollers, the question of steam carriages for them is becoming of such importance, that a bill is now before the House of Commons, to authorize the commissioners of such roads, to take a toll of twenty-five cents for every steam carriage, and from six to eight cents for every wagon drawn by such steam carriage; also to compel each steam carriage to consume its own smoke. One which will convey four persons, and then weigh only thirty hundred weight, passengers included, has recently been built. It ran, on a level road, from twelve to fourteen miles an hour, and can ascend a hill whose grade is one to twelve. The passengers sit in front, and the water tanks form the framing of the engine. It has two driving wheels, and a front or steering wheel, and consumes six or seven pounds of coal a mile, the boiler evaporating a gallon of water a minute. The builder is Mr. Thos. Rickett, of Buckinghamshire.—*Scientific American*.

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**HARD CEMENT.**—The following cement has been used with great success in covering terraces, lining basins, soldering stones, etc., and everywhere resists the filtration of water. It is so hard that it scratches iron. It is formed of ninety-three parts of well burned brick, and seven parts of litharge, made plastic with linseed oil. The brick and litharge are pulverized ; the latter must always be reduced to a very fine powder ; they are mixed together, and enough of linseed oil added. It is then applied in the manner of plaster, the body that is to be covered being previously wet

with a sponge. This precaution is indispensable, otherwise the oil would filter through the body, and prevent the mastic from acquiring the desired degree of hardness. When it is extended over a large surface, it sometimes happens to have flaws in it, which must be filled up with a fresh quantity of the cement. In three or four days it becomes firm.—*Ib.*

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**AYRSHIRE COWS AS MILKERS.**—Speaking of the late Hampden Co. (Mass.) cattle show, the *Springfield Republican* says: "Mr. Birnie's family of Ayrshires attracted much attention; he keeps, also, a large herd of pure Short Horns, and he awards the superiority for milk to the Ayrshires. In proportion to the food they eat, he says no breed can surpass them in yield of milk. He has a young, small cow of eight hundred pounds, that has, since April 1st, given nearly six times her weight in milk, averaging more than her weight per month; and a two-year-old daughter of this cow—baby looking animal, but already in milk—yields up her twenty pounds daily."

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**MILK WITHOUT BUTTER—A REMEDY.**—A French agriculturist mentions cases of cows whose milk, otherwise of good quality, lacked the butter-forming power, even to so great a degree, that if mixed with the milk of several other cows, the product would be very small and of inferior quality. Such, to some extent, we have known to be the case. The writer above mentioned, says that cows usually giving milk rich in butter, sometimes, though well kept, yield inferior milk, and that he has found the following a successful remedy: It consists in giving the animal two ounces of the sulphuret of antimony, with three ounces of coriander seeds, powdered and well mixed. This is to be given as a soft bolus, and followed by a draught composed of half a pint of vinegar, a pint of water, and a handfull of common salt, for three successive mornings, on an empty stomach. A single dose is usually followed by an improvement in butter, gradual but permanent in its results.

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**BEST TIME TO CUT TIMBER FOR FENCING.**—Late autumn is the best time for felling timber for almost any purpose, and it is particularly so when the timber is to be worked up into rails, or stakes, or posts for fencing. At that season of the year the new wood has arrived at its complete maturity, and there is less sap and albumen in timber than there is at any other season of the year, which albumen, when exposed to the influence of the weather, hastens the decay of timber. If timber be cut and split out, in the latter part of autumn, the seasoning process is much more gradual and perfect, because the grain of the timber contracts more equally and uniformly, rendering the timber firmer and less porous, and less cracked, than when cut at many other seasons of the year. Besides, timber that is cut in late autumn, and split out, or sawed out before spring, will not "powder post," nor be injured by the worms working in it, nor be injured by dry rot, as is the case with timber, many times, which has been cut at some other seasons of the year. Fence posts and stakes, particularly

no matter what the kind of timber may be, when felled and split out in late autumn, willout last other posts and stakes, of the same kind of timber, which may be cut at a different season of the year, by several years, according to the time it may be cut. Reason teaches us that this is so, and the experience of the most successful experiments in timber, furnish the most indubitable testimony to substantiate the fact.—*Scientific American*.

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**HEN HOUSES.**—A correspondent of the *Germantown Telegraph* gives the following description of his hen house, and mode of caring for the comfort and health of his fowls :

“Two years ago I put up a building of gravel bricks, which, you must know, are composed of a mixture of gravel and lime, and molded into blocks as large as six or eight common bricks, and allowed to dry in the sun for some weeks before being laid. The house is twenty by twelve on the ground, and to the eaves about ten feet high. We divide it into two equal parts, for a smoke-house in one end, and the other for the accomodation of the poultry. Of course, the partition wall is entirely tight. As the roof is of common cedar shingles, it was necessary to plaster overhead to make it fire-proof. The floor is in one piece, of the same cement as the wall.

Thus you have the domicil. Now for its management and its advantages. Once a week, early in the morning, while the dew is yet upon the grass, if the weather be dry, it is thoroughly *burned out*, and purified of all *foul* things. This is done by gathering the litter of the nests and the sweepings from the floor to the latter, on which pile is thrown an armful of dry straw or shavings, with a couple of spoonsful of sulphur. The windows are next closed on the inside with sheet-iron coverings. The fire is kindled, the door is shut, and the work of purification is continued for half an hour. Now, when the fire has been extinguished, what remains upon the floor is gathered into a barrel, and shoved to one side, where it is kept dry from the weather, as a valuable fertilizer, till needed for the field or the garden. Thus is collected six or eight barrels per year of this home-made guano, which we think worth more than twice the interest of the cost of the entire building.

The whole expense of both hen and smoke-house was less than one hundred dollars. You will perceive that by upsetting and burning the nests weekly there is no chance for setting hens. You must, therefore, find other quarters for them and the little chickens, which is better for all. In the roost are accommodated about eighty hens and cocks, which are happy and healthy, and which supply us with an abundance of eggs the year round.”

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**SMUT IN WHEAT—AN EXPERIMENT.**—An experiment is related in the *Rural New-Yorker*, where three plots of ground exactly alike were sown with wheat to test the cause of smut. The first was sown with smut wheat, and (of course) did not grow. The second was sown with bruised wheat, broken in threshing, which some think the cause of smut. A few kernels grew, but produced no smut. The third plot was sowed with good wheat rolled in smut until the kernels were entirely black with it. The product was *one-half* smut wheat.

# Editor's Repository.

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THE most important event transpiring during the past month, pertaining to the agricultural and mechanical interests of the state, was that of the location of the State Agricultural Society's Fair for 1860. The annual meeting for the choice of officers and locating the fair for the ensuing year, was called on the eighteenth of January. A much larger attendance of members characterized the meeting, and a greater interest was manifested in the future success and welfare of the society, than had ever before been exhibited; so that instead of consuming a day or two at most, in endeavoring to advance the interests of the society by securing, in the choice of officers, a proper administration of its affairs for 1860, the meeting—adjourning from time to time—continued with its discussions and counter discussions, resolves and re-resolves for the greater part of four days.

The matter that elicited the most interest and feeling among the members present, was that of the location of the next fair; a small minority desiring to have it at Oakland; a somewhat larger minority voting for San Francisco, whilst an overwhelming majority were in favor of Sacramento. We have ever been of the opinion that the best interests of the society require that it should be located permanently somewhere. The great expense attending its removal, annually, from place to place, and the entire absence of anything like a sufficient and comfortable accommodation for the numbers that throng the fair, at any other place in the state than the two principal cities, San Francisco and Sacramento, would seem to justify a permanent location at one of the two places.

We believe there is no other point in the state where the necessary accommodation can be had for visitors, and where so many can congregate at a less trouble and cost to themselves, or where a pavilion, equal to any other on the continent, can be secured for the purposes of the fair, free of cost to the society, or a place more generally desirable to a large majority of the members of the society for the annual fair, than Sacramento. For this reason we acquiesce in the decision of the majority, though our preference, so far as personal convenience is concerned, would have been San Francisco. The society, with the large amount annually paid into its treasury, ought not to be kept continually bankrupt by the enormous expense incident to an annual migration. We are glad, therefore, to see something like reform inaugurated in the matter of expenditures, which can only be done, in our opinion, by a permanent location of the annual fair at such place as, whilst it affords the necessary accommodations for exhibitors and visitors, provides with a prodigal liberality the finest building and offices ever before proffered to the uses and purposes of an agricultural society by the people of any county, in any country.

The new board of officers and managers; their undoubted ability to conduct the affairs of the society; their determined purpose of economy in all expenditures, are a sufficient guarantee of a successful future, and we predict for the next state fair a success that will require a still after and greater effort to equal. The officers of the society for 1860 are—President, T. G. Phelps, of San Mateo. Vice Presidents, J. J. Warner, Los Angeles; Cary Peebles, Santa Clara; B. Woodward, San Francisco; Caswel Davis, Shaw's Flat; L. B. Harris, Sacramento; Nathan Coombs, Napa;



Jas. T. Ryan, Humboldt; P. B. Reading, Cottonwood; Chas. Justice, Johnson's Ranch; Dr. J. S. Curtis, Sacramento; Dr. Wm. Rabe, San Francisco; Wm. Thompson, Millerton; A. T. Laird, Nevada; R. J. Walsh, Monroeville; Dr. E. B. Harris, Ione Valley; Judge Coulter,—; P. De la Guerra, Santa Barbara. Corresponding Secretary, O. C. Wheeler, Sacramento. Recording Secretary, N. A. H. Ball, Sacramento. Treasurer, D. O. Mills, Sacramento. Managers, Wilson Flint, Sacramento; Thos. Ogg Shaw, San Francisco; P. J. Devine, Sacramento.

During the discussion relative to location, the question was mooted as to the constitutionality of its location for two years in succession in the same place. The opinion entertained by the majority present, we find embodied in an article in the *Alta California*, which we appropriate as follows:

**EDITORS ALTA:**—There appears to be no violation of the Constitution of the State Agricultural Society, in selecting Sacramento for the next fair. The present Constitution was adopted *after* Sacramento was chosen for the fair of 1859, so that this is the first election for the place of the fair, under the new constitution; and Sacramento is equally eligible with all other places.

But the people of Sacramento know that their action in the selection of their city for the second consecutive term of the fair, is against the public sentiment of the agricultural and mechanical people of the state. [Outside of Sacramento and adjoining counties.—ED. CULTURIST.] Mr. Crocker, a merchant of Sacramento, urged this view at the late convention, and, with great eloquence, implored his fellow-townsmen to respect public sentiment, and not endeavor to use the agricultural society of the whole state for the private advantage of Sacramento.

● This gentleman advocated San Francisco, on the ground that it was the interest of the society that the next best place should be selected with reference to its means of accommodation and readiness of access. He said, truly, that Oakland is no place for the fair. The delegation which went up from Oakland, admitted that San Francisco would have to be looked to for accommodation if the fair was held at their place. An awkward revelation was made against the claims of Alameda, viz.: that county had but one member in the State Agricultural Society; and, further, had never exhibited any interest in the institution, till now it sends a delegation to claim the use of the society's fair, apparently to make some money for their place, and to do this, every visitor from elsewhere is proposed to be taxed with the time and heavy cost of ferriage.

These very weak claims of Oakland ruled it out, and as San Francisco was not asking for itself the location, the eligibility of Sacramento, as the next best for public accommodation, was urged and carried by a Sacramento vote. Without approving the action of the people in this matter, we may suggest that Sacramento is not without excuse. It provided a fine building for the fair last year; and, contrary to expectation, the agricultural institution came out of the fair, in debt several thousand dollars (\$7,000).

No one will say that the active officers of the institution, mostly of Sacramento, did not work manfully and well, in getting up and conducting the fair, allowing fairly for its being their first experience, in a country so new in its agricultural features as to afford scarcely any available reference to the experience of other states.

On the ground of this debt, which is due to Sacramento capital, and which may be worked out by another fair; and on the further ground of the experience now possessed by the people of Sacramento, to more economically and still more efficiently conduct the next fair; and because no other place proposed makes any show for accommodating the fair, while Sacramento has full conveniences to offer, free of charge—on these united grounds, we say that Sacramento is entitled to some consideration, which may protect her people from too hasty condemnation. **ANTHRAX.**

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**OUR FRONTISPIECE.**—A lithograph by Kuchel, of the Easter Beurre pear. This is one of the best, as it is the largest of the dessert winter pears. Its season of ripening is from March to May in most of the Eastern states where cultivated; in California it begins to mature in February and a few specimens have been kept till the middle of April. Downing says this pear is considered abroad, one of the best winter or late spring pears. It seems to require a rather warmer climate than the Eastern states to arrive at full perfection, and has disappointed the expectation of many

cultivators. In California it bears admirably and the fruit is of exquisite flavor, and a fortune might be made by the culture of this one variety. It is annually imported from France in considerable quantities, and has been sold in New York as high as twelve dollars a dozen; but the more ordinary price there for good specimens is three dollars a dozen. Its flesh is white and very juicy, buttery and melting, when well ripened.

The lithograph we present, is a truthful copy as regards size and form, of the specimen copied from, though larger than the size usually attained by this variety. We regret that we have mislaid the memorandum, by which we are disabled from giving the producer's name. It was one of a half dozen pears of the same variety that took the first premium at the late agricultural fair at San Jose. By a mistake of the binder of our December number, a few copies of that number may be found to contain the Easter Beurre; it should have been the Beurre D'Anjou.

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RASPBERRIES, CRANBERRIES.—EDITOR CULTURIST.—I should like to be informed, through the medium of the CULTURIST or otherwise, if the raspberry can be propagated in the manner recommended for the blackberry, on page 308 of the January number. The article on the Cranberry Culture (page 299) has suggested to me that much of the abandoned mining ground among the mountains might be successfully used for that purpose. There is a good deal of land in the mines, that has been covered to a great depth with what miners call "tailings." This is sometimes coarse gravel; sometimes fine, light sand; sometimes coarse gravel with large stones, and sometimes a mixture of all three. I have ground covered to a depth of four or five inches, to that of several feet, with washings, consisting of a mixture of tailings, of all grades, from the finest sand to stones as large as a moderately sized fist. If I had something to begin with I should certainly try the experiment, and perhaps others might be influenced to do the same. How is the cranberry propagated? How and when and at what cost shall I get the material to begin with, and what do you think about it? You must excuse me for troubling you, for you know that we are in the habit of regarding you a public oracle on agricultural matters, so far, at least, as your subscribers are concerned.

Truly yours,

COLUMBIA, Jan'y 5th.

JAMES WOODWORTH.

We have never heard of raspberries being propagated from mere sections of roots; it is possible, however, that they may have been by that mode, though the usual method is by offsets from old stocks or plants, having at least a small portion of both root and top. Having received from no less than three other sources, inquiries relative to the culture of the cranberry, we give publicity to a portion of a circular on the cranberry, recently received from Sullivan Bates, Bellingham, Norfolk county, Mass., believing it will be perused with interest by many of our readers. See also advertisement.

"As much as has been said on the subject of the cultivation of the cranberry, and as many communications of inquiry on that subject are daily received by me, I propose giving such information to the public as my experience will permit. There are but very few soils in the United States, but what will successfully grow the Bell cranberry. When the following soils are at hand, it is well to select them:

1. Select a situation for your cranberry field on a clay soil, or on a dark loam soil, or on all soils where there is a mixture of sand, mostly of reclaimed lands, such as can be made moderately dry, are well adapted to grow the cranberry. In fact, most all soil that is natural to grow the potato, is well adapted to grow the cranberry—yet the first mentioned soils would be preferred. As far as I have ascertained, there are three varieties of cranberry, viz: The Barberry, Cherry, and the Bell. I have never known of any other variety of the berry that would naturalize to dry soil, except the Bell cranberry; this species of the berry grows much in the form of an egg; it is inclined to grow in the wild state, on the borders of cranberry bogs, spreading its way to upland soil; this species is much larger than the others in its wild state. Persons engaging in the cultivation of the article, should commence with the last mentioned species; and, by commencing with those that have been

cultivated and naturalized to a dry soil, they will much sooner accomplish their object, with much less trouble and expense, as the plants multiply and increase abundantly.

2. Prepare your soil the same as for sowing grain, by plowing, harrowing and making your soil even; then mark it out in drills, eighteen or twenty inches apart, putting the plants in the drills, five or six inches apart; hoe them slightly at first, till the roots become clinched, and afterwards no other cultivation is needed. The plants may be expected to run together and cover the whole soil in two or three years. The cranberry grown by cultivation usually yields from one hundred and fifty to four hundred bushels per acre; its fruit is two or three times as large as the wild fruit, and of a beautiful flavor; it readily keeps sound from the harvest time of it till the time of harvest, again. The fruit is usually gathered in September—it is gathered with wire-teeth rakes, made for the purpose—one man will generally gather from thirty to forty bushels per day, with the aid of a boy to pick up the scattering fruit.

The proper time for fall transplanting is October and November; for spring, from the opening of the same till about the twenty-fifth of May. Persons wishing for plants, are requested to send their orders as early as the first of September for fall transplanting, and during the winter for spring.

*The Cherry Cranberry.*—This species of the cranberry generally grows on wet soils, though they will flourish well when put on higher soil, such as may be plowed in a moderately dry time. Persons having soils varying from wet to moist upland, may successfully grow the Cherry variety. If the meadow is not inclined to be very grassy, the plants may be set out over the meadow in bunches two or three feet apart, say six or eight plants in each bunch. The plants are very poisonous to the grass—if they do not have too much to contend with in the first state—and will soon overpower it. Where the soil is very subject to be heavily burdened with grass it is well to remove the top soil, previous to setting the plants. When soil is so situated that sand or gravel can handily be procured, the soil may be covered with either two or three inches deep, and without any other preparation the plants may be set. The sand or gravel will prevent the growth of the grass, till the plants have made headway sufficient to overpower all grass, etc. that may appear after.

*Bell Plants in Pots.*—The plants can be also furnished growing in pots and boxes, forming a beautiful ornament, as the fruit when protected will remain upon the vines until they again blossom, the blossoms starting each year from the new growth. *To this the attention of the ladies is particularly invited.* The plants can be sent in pots, at any season of the year, to any part of the United States. They will flourish on their passage, and can be transplanted to the open ground in the proper season, at leisure. The exceeding beautiful appearance of this slender vine, standing erect, and clothed in the most luxuriant green, bearing its delicate blossoms, and laden with rich clusters of crimson colored fruit, renders it as an ornament for the window, garden or green-house, entirely unrivalled.

As it is supposed by some few persons at this late date, that the cranberry will not flourish on dry soil, I add the testimony of some of our most respectable citizens.

We, the undersigned, hereby testify that we reside in Bellingham, Mass., near the premises of Mr. Bates. We have been daily witnesses of his great success in cultivating the cranberry on upland soil.

PAUL CHILSON,  
ASA PICKERING,  
JOHN BATES,  
WM. PAINE,

WARREN SANDERS,  
DAVIS CHILSON,  
DARLING HUNTRESS,  
SYLVANUS COLEMAN.

The common American cranberry (*oxycoccus macrocarpus*) is found growing in a wild state in all swampy soils, in the Eastern, Middle and Western states. The first account we have of the cultivation of this fruit, is by the late Sir Joseph Banks, who, in 1813, produced, from a bed eighteen feet square, three and a half Winchester bushels—being at the rate of four hundred and sixty bushels to the acre. Capt. Henry Hall, of Massachusetts, has cultivated this fruit for the last twenty years. His method is to spread on his swampy ground a quantity of sand—this is to kill the grass; but where sand is not at hand, gravel will answer the same purpose. He then digs holes four feet apart each way, and puts in the holes sods of cranberry plants about one foot square.



As this plant naturally grows in a very wet soil, it is generally supposed it will not thrive in a dry soil; but this idea is erroneous. Mr. S. Bates, of Bellingham, Mass., has cultivated the cranberry on a dry soil for several years with the utmost success. His method is to plow the land, spread on a quantity of swamp muck, and after harrowing the soil thoroughly, set out the plants in drills twenty inches apart, hoeing them the first season. After this no cultivation is needed. By both the above methods the plant will cover the ground in three years. From my own knowledge of the cranberry for the last thirty years, should I design commencing the cultivation of this fruit on an extensive scale, I would try it on swampy and dry soils. I would drain the swampy soil, plow it as early as possible in the spring, and set out the plants on the plan of Mr. Bates. To show the rapidity with which cranberry plants increase, I will add this statement from an English work on fruits: An English gentleman had only a few plants; these he cut in small pieces or cuttings, and set them out in a green-house. In the spring he prepared some swampy ground by spading it twelve inches deep. In a bed one hundred and fifty feet long and four feet wide, he set out seventy-five cuttings in one drill through the length of the bed, putting the cuttings two feet apart in the drill, and yet in three years the plants completely covered the ground.

Previous to shipping cranberries, they should be run over a platform slightly inclined. The rotten and bruised fruit will not run off, but stick going down the platform, and are scraped off and thrown away. The perfect fruit is then put into tight barrels, and when headed up filled with water, and in this manner they arrive in Europe in perfect order, and have frequently sold in foreign ports at twenty dollars per barrel. Rakes are now made for the express purpose of gathering cranberries, and although these rakes tear the vines somewhat, yet the crop is not diminished by raking: on the contrary, it has been increased. Some years ago, a gentleman in Massachusetts commenced raking his little patch of one-fourth of an acre. The first year it produced twelve bushels, the next eighteen, the third twenty-five, and so on till his last harvest, when the crop amounted to sixty-five bushels. This increase is easily accounted for by the method of gathering with rakes, the pulling up of a few of the vines loosens the ground, and although not intended, yet in fact the raking acts as a partial cultivation.

The testimony of the New York Farmers' Club to Gen. Chandler, by the Chairman, is most flattering—he declares the opinion that five hundred dollars may be obtained for a full crop of one acre. He adds, "I found Mr. Bates' cranberries excellent and unusually large."

BELLINGHAM, Norfolk County, Mass.

SULLIVAN BATES."

**HOW TO PLANT FRUIT TREE SEEDS.**—In answer to the inquiry of James Woodworth, of Columbia, relative to the best mode of planting seeds of fruit trees, we give our own experience in the matter. We will suppose the seeds to have just arrived from the East—as is the case with the packages we sent you last week—all of them, including apple, pear, quince, cherry and plum, should be placed at once in boxes, with enough garden mold to keep them in contact therewith and no more, and then set the boxes in the garden grounds, that the soil mixed with the seeds may be kept at about the same degree of moisture, and protected from mice or other vermin. If they can be acted upon by frost, all the better, particularly the cherry and plum. A large part of the apple and quince, and a fair proportion of the pear, will doubtless start on the approach of spring, at which time they should be frequently examined, and when they show indications of starting, they should be planted at once in the ground prepared to receive them, whether it be in the orchard or nursery row.

A great error is often committed by allowing the seeds to remain in the boxes till they sprout. A removal and planting out after they have made sprouts of one-half inch in length, is very frequently fatal to their after success. As spring approaches, if the cherry and plum stones do not open, they should be carefully cracked, but planted with the shuck or shell still around the seed; this plan will ensure a large proportion. It often happens, in a climate where there is but little frost, that even the apple, pear and quince do not all vegetate the first year, many of which would, if allowed to remain in the ground another season. It is the practice of some to pour hot, not scald-

ing water, upon apple and pear seeds, to promote their speedy germination, allowing them to remain in a few moments, and then partially drying them again in the sun before planting. This operation has the effect to cause the cuticle or outer covering of the seed to crack, which facilitates the starting of the germ. It may be practiced advantageously, if with proper care. Plant one and a half inches deep, and keep the ground moist, not wet, till they germinate.

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**PLANTING FRUIT TREES.**—Mr. Burtis, agent for the sale of Fox's nurseries, gives the following explicit advice to persons about to plant fruit trees :

Prefer the elevated terraces or land rolls to the low grounds, which suffer most from spring frosts. The best soil is that which will keep most loose when cultivated properly.

Windy exposures are more easily protected than is supposed. A hedge of malvas, or of willows, or an open picket fence, or both combined, will secure a fruit crop almost anywhere in the bay winds—peaches perhaps excepted. But in no situation will fruit trees yield surer crops than among the hills of our mining districts. Plant trees as early as possible in this climate.

Buy only of nurseries of undoubted reputation for knowledge of the business. The purchaser should be able to place implicit confidence in the trees being true to their labels. It is an awful vexation, after three years' care and anxiety, to find the trees you bought of Mr. What's-his-name bear only wild apples.

*Directions for planting and cultivating trees.*—Before a tree is set out, let it be put down as indispensable to the full expansion of its roots, and the safety of the tree in years of trial, that the ground be plowed deeply as possible. Let the holes be spaded deep and the ground well pulverized. By a clean cut, lop off all seriously bruised roots, and give every root all the room you can ; do not curl nor crowd them—and leave no hollow space when you fill in around them. The tree should, when settled, stand about the same depth as in the nursery.

Do not be anxious to have your trees look tall ; the process of transplanting destroys so much root, however well done, that there must be a corresponding cutting down of the upper growth. In the next season, the head of the tree will then be much finer and fuller. Do not allow branches to be cut near the ground ; the stem needs their protection to save it from sun-scald. It is a safe rule that the younger the tree you transplant, the more vigorous, more fruitful and more hardy it will prove in the end. Not one advantage is gained by getting large trees of three and four years' growth.

Keep the surface always loose and clear of weeds ; in the month of June—according as the dryness indicates—a mulching of straw and earth over the roots, affords a priceless protection against drought. If you irrigate afterward, pull away the mulching as you water, and return it immediately. When the first rain falls in November, the mulching should be opened.

If you irrigate, do it in July ; and one full watering then is better than three sparingly applied. After the first week of August do not water, except to save a tree that is evidently in danger. Water, like medicine, needs caution against excessive indulgence. It should be used less to force than to protect the tree, and chiefly to carry it through the first year's weakness, till its destroyed roots are restored. But experience alone can give reliable rules for irrigation ; they will vary in different soils and seasons, and with different varieties of trees.

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**A CALIFORNIA WORK ON BEES.**—Mr. J. S. Harbison, of Sacramento, one of the earliest importers and most successful managers, and we believe, the most extensive propagator of the honey bee in California, will soon present to the public a new work on the propagation and management of the bee, as adapted to a California climate and the use of his improved patent moveable frame hive, including a description of some of the plants and flowers the best for bee pastures in this state. The long practical experience of Mr. Harbison in bee management, both in the Eastern states and here, eminently qualifies him for the production of a standard work on the subjects he presents. The work will be issued within a few weeks.

**THE CULTURIST—ITS PATRONAGE.**—We have orders from recent subscribers, for over one hundred and thirty of our first volume bound. We have added eighty-six new names, paid subscribers, to our former list during the month of January, 1860. We now number over nineteen hundred. The CULTURIST is becoming a household necessity, not only among the valleys, but the foot-hills and mining districts of the state. Thus, at the mining town of Nevada, we have a list of over sixty paying subscribers; at North San Juan, over thirty; and at Grass Valley, over seventy; whilst hardly a mining camp in the state that does not contain its subscribers for the CULTURIST; so that as an advertising medium going home to the firesides of winter, and in summer to the shaded porch of the reader's domicil—the miner as well as farmer—to be scanned at leisure in "the old arm chair," the CULTURIST, owing to its preservable form, offers superior advantages. These advantages are appreciated, and for which, and the generous support our enterprise is receiving from all quarters, we are grateful.

**WHAT CHEER HOUSE.—FREE LIBRARY.**—Very many of our patrons are from the mining counties of our state, men proverbial for their reading habits and love of literature, and withal possessing a desire—though miners—to keep pace with the agricultural and mechanical improvements of the age. It is for this reason that so many take the CULTURIST, and of the few who do not, it is remarked that, on their visiting San Francisco, they repair at once to the What Cheer House, where they know they can get the perusal of our bound volumes—for they will read them. The proprietor, a Vice President of the California State Agricultural Society, knows this; and so, among something over four hundred volumes of new books just added to his former extensive and well selected library, the CULTURIST is a becoming feature. Now we are not speaking thus as an advertisement for the What Cheer House; but of its library and reading-room, where the sojourner in the city, for a day, or week, or year, can find an unequalled opportunity of enjoying a fund of excellent reading, embracing a great variety of standard works, with all the journals and newspapers of the day, we do claim that we can legitimately speak, and recommend the same to the attention of the public and the patrons of the CULTURIST.

**LANGSTROTH'S PATENT BEE HIVE.**—We have often been inquired of relative to the Langstroth patent, not only as to its utility, but the extent of his claims under his patent; and whether the Harbison hive, with its improvements, and all others with moveable frames, were not infringements upon the original patent for moveable frame hives. Never until recently, we believe, has Mr. Langstroth had an agent in California. We now learn the fact, as set forth by advertisement herein, that Mr. Hiram Hamilton, of Santa Clara, is the agent for Mr. Langstroth; and by reference to said advertisement, it can be seen just what is claimed under the Langstroth patent. It will interest many.

**THE HONEY BEE MANIA.**—Just now there seems to be a perfect mania on the subject of bees. Hardly a steamer arrives from Panama that has not its hundreds of hives of bees, and in all conditions from fair to worthless; but the greater part we are quite sure will prove to be of the latter quality. There is no certainty that such hives will be worth, in two months from this time, more than the value of the honey and comb they may contain. We believe the novice in bee-keeping had better by far, procure good strong stocks of bees, in the moveable frame hives, of some one of our reliable apiarians, even at three times the cost at which a greater part of the recent importations have been disposed of.

**WHERE ARE THEY?**—Mrs. A. Dyer, from Buffalo, N. Y., arrived in San Francisco in November last. She wishes to hear some tidings of her two sons, Spencer S. and R. C. Dyer, both of whom were boarding at the Plaza Hotel in San Francisco, as late as July 14th, 1859.

METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending December 30th, 1859; Lat. 38°, 34', 41'', N.; Long. 121°, 27', 44'', W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By THOS. M. LOGAN, M. D.

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Thermometrograph.

	Dec.		Dec.
Highest Reading by day on the 10th .....	54.00	Mean of all Highest Readings by day .....	47.63
Lowest Reading by night on the 6th .....	28.00	Mean of all lowest readings by night .....	34.38
Range of Temperature during month .....	26.00	Mean daily range of Temperature during mo. 15.33	

REMARKS.—The most note-worthy characteristic of the month is found in the long persistence of cold, foggy weather. January is the usual month for the predominance of the saturating fogs of our winter season; but as occurred last year after the early rains, the earth has become already so thoroughly chilled as to be rendered capable of condensing so much the sooner the vapor borne by the south-east trades from the southern hemisphere. Owing to the shortness of the days, the sun possesses but little power to dissipate these fogs; and hence, during the greater part of the month, and for four entire days, the surface of the earth remained enveloped in their murky shroud. The amount of vapor precipitated in the rain-gauge from this source, and which is included in the figures above, under the head of inches of rain and fog, amounts to 0.142 inches.

Although the rains which fell in the early part of the season were amply abundant for agricultural purposes, nevertheless their subsequent diminution confirms the opinion expressed by us in former numbers, that the cultivator of the earth cannot depend, with any certainty, upon them

alone ; but must be prepared to supply their deficiency whenever it occurs, by irrigation ; for which expedient no other country, perhaps, is better adapted, both as regards qualities of soil and climate, as well as facilities of commanding water. From the fact that the winters of 1849-50 and 1852-53 were very wet seasons, popular opinion seems to favor the idea that every third or sixth year are periods of maximum rains. If this be so, the second long cycle of six years is now finished, and we may expect this to be a very wet winter. On this point it would be altogether anti-philosophic in us to express any direct opinion. We have only just entered on the eighth year of our serial observations, and many more years must elapse before generalizations can be readily deduced. A vicenniad, or at least a decade must absolutely be accomplished to impart the least value or importance to any prognostications that may be predicated upon meteorological observations. Anything short of this would amount to charlatanry in physics—the most rigorous of the exact sciences. One thing is certain, that California does not offer an exception to the diminution of rain, which has been very general in various parts of the earth during the last five years. The *London Medical Times and Gazette*, in commenting thereon, states the following facts, which we quote as a matter for curious speculation in this connection :

“ In all countries, traces of dried up streams are met with ; but within the historical period there are no examples of new rivers coming into existence. The Dnieper at Kiev is drying up ; the redoubted plains of Troy can with difficulty be recognized or traced, because the rivers, mentioned by Homer, whose descriptive topography is not doubted, either cannot be found, or they are now such insignificant streams as to fall below the description of the poet. About the mouths of the Nile the water is becoming shallow ; while there is reason to believe that the volume of its waters has been, within the period of history, sensibly diminished. The Baltic is decreasing ; the Atlantic derives its name from a town that is now eighteen miles from the shore, and was once a flourishing seaport. North America is sensibly draining ; the rivers are slowly wearing away the rocks and occupying a lower bed. America, on the Pacific ocean, is notoriously rising, or the ocean which surrounds it is sinking.”

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FIELD'S PEAR CULTURE.—A correspondent wishes to obtain a reliable work on the culture of dwarf pears, or pears upon the quince stock. We would recommend Field's Pear Culture, as the latest and best work with which we are acquainted. It can be had in this city of Warren & Carpenter, 167 Clay street, together with all the standard agricultural publications of the day. Their advertisement, in our addendum, combines a portion of their excellent stock of books and periodicals.

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PREMIUMS AT THE ST. JOSEPH, MO., FAIR.—The sons of Malta offered a premium of a tea service, boquet, jack-knife and cane. His Honor M. Jeff. Thompson, Mayor of St. Joseph, secured a jack-knife, as being the ugliest man on the fair grounds ; and Mr. A. K. Miller, editor of the *St. Joseph Journal*, an elegant cane, he being considered the handsomest man present. The boquet to the handsomest unmarried lady, under twenty-five years of age, was awarded to Miss Helvey, of Platte county ; the silver tea service to the handsomest married lady under thirty years of age, having the most children, to Mrs. H. C. Smoke, of St Joseph.

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OUR NEW ADVERTISERS.—Were it in our power to spare the room, and do justice at the same time to our readers, we would like to devote about one page monthly in calling the attention of our readers to our new advertisements. The fact is, we must either call upon our advertising patrons to occupy less space, or we must so increase the thickness and consequent weight of our magazine, that the postage will be increased from one to two cents on each number. Will our patrons just look over our advertisements and see if they are not really worth the additional cent a month postage, if only to see what there is for sale in the world ?





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# THE CALIFORNIA CULTURIST.

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MARCH, 1860.

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## A STOCK STARVING STATE.

IF EVER hunting it may be to our state's pride, or to the character of our stock-growers for prudential management, we believe there is not another portion of North America, of equal extent, in which so many animals die annually of starvation as California. We say it is *hunting* that a country, where nature has provided a most favored climate, and perpetual pastures for the flocks of the farmer, is annually with world-wide, actually starves to death more cattle than are raised in any ten of the Atlantic states, even if we include all the New England. For the last five years, during the winter months, a great number of many of the counties of the great lower valleys, have given evidence of the fact, that large numbers of stock were in a starving condition when lying.

This winter it was hoped might prove an exception to previous ones, by the early and genial rains of last autumn, and the consequent early growth of green food than had characterised former seasons. But the rains have been disappointed, and now our stock are dying by thousands. *The Farmer* says: "We are informed that in the counties of Butte, Colusa, Yuba, and Sutter, this winter, many of the inferior counties, on account of the protracted drought, thousands have absolutely perished, and their herds are reduced to a few plains. A gentleman from Butte county informs us that his neighbors have sustained very heavy losses by their cattle dying. He says that he has lost about one thousand head. Others have suffered in proportion. It is said that feed is scarce in all the counties known at this season of the year."

According to the record we have named, the local papers of the State are confident that this season is not an exception; but only that, in consequence

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# THE CALIFORNIA CULTURIST.

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MARCH, 1860.

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## A STOCK STARVING STATE.

**H**OWEVER humbling it may be to our state's pride, or to the character of our stock-growers for prudential management, we believe there is not another portion of North America, of equal extent, in which so many animals die annually of starvation as in California. We say it is humbling that a country, whose fame for possessing the most genial climate, and perpetual pastures for the herds of the husbandman, has gone forth world-wide, actually starves to death more cattle in a single winter, than probably any ten of the Atlantic states, even if we include among them those of bleak and frosty New England. For the last five years, during the winter season, the local papers of many of the counties of the great lower valleys, have given their endorsement of the fact, that large numbers of stock were in a starving condition and very many dying.

This winter it was hoped might prove an exception to previous ones, inasmuch as the early and genial rains of last autumn gave promise of a more abundant winter supply of green food than had characterized previous years; but in this we have been disappointed, and now our stock are dying by thousands. The *Marysville Express* says: "We are informed that there is great suffering among the cattle of this and adjoining counties, on account of the unparalleled scarcity of food. Thousands have absolutely perished, and their bodies may be seen scattered over the plains. A gentleman from Butte county informs us that stock men in that county have sustained very heavy losses by their cattle dying. Major John Bidwell has lost about one hundred head. Others have suffered in proportion. It is said that feed is scarcer than it ever was known at this season of the year."

Now, by reference to the record we have named, the local papers of the counties, it is evident that this season is not an exception; but only that, in consequence of the

large increase of stock over former years, there are necessarily larger numbers to die; for the natural pastures of the state, instead of yielding an increased quantity of forage, are annually yielding less and less. There must be something radically wrong in a system of stock husbandry, that shall allow of thousands of animals dying annually by direct starvation. Either there is not sufficient forage grown for the year's supply, or there is a most reckless improvidence on the part of the grower to garner it up for the winter's consumption.

We believe one great error of the stock-grower, productive of so much suffering to the animals and loss to himself, to lie in this: a tacit belief that it is unnecessary to provide for the general stock of the farm, other than the working animals, any winter feed beyond that supplied by the natural pasturage of the country; that because our pastures are green through nearly the whole of winter, cattle can live. There are too many, however, who mistake the nature of their green pastures, and particularly in regard to the quality of the herbage produced. It is well known that the greater part of the product of the dry plains and hill lands available for pasturage, is only weeds; that but few of the great variety produced are ever eaten by cattle, except in nearly a starving condition; that these weeds are always the first to start in the season, clothing the ground in green long before a blade of nutritious grass appears. It is folly to suppose that stock can be sustained much above the starvation point, upon a very short bite of bitter, innutritious weeds, every few days blackened by frost, and this their only feed for months together, through the rainy and coldest season of the year.

The result of the last eight years' management of stock in California; the immense annual loss incident to a constantly recurring scarcity of winter food, ought, before this, to have taught our herdsmen the necessity of providing against the calamity that this winter is more than doubly decimating their herds. It is certainly hopeless to expect, with the condition incident to a more densely populated country than formerly, that California can ever again sustain the immense herds she once has upon her broad plains and oat-clad hilltops. The fencing and surroundings of thousands upon thousands of acres of grain fields, from among the most naturally luxuriant and productive lands of the state, its river alluvium and low valley lands, shuts out from the herdsman the very lands that were the main dependence of the old stock-growers for a successful wintering. On the greater part of such lands the enormous growth of summer, owing to its luxuriance and rankness, was but little consumed by stock in summer—the cattle preferring the short but sweeter pasturage of the hills; but when this was consumed, rather than reach the starvation point of present experience, they would resort with a demanding appetite to the less nutritious but more abundant product of the rich alluviums of our bays and rivers, and with a certainty of finding ample subsistence.

But this condition of things is passed, and yet an attempt is made to sustain the same or even increasing herds upon the product of the hills alone; and nothing will convince our stock-growers of its utter impracticability, but the constantly recurring loss by the winter starvation of their herds. One great evil incident to stock-grow-

ing in many parts of California, and one which operates heavily against the legitimate home farmer and stock-producer, is the mania for stock-growing by a class of men, who, whilst they have the means to engage in the business, so far as the purchase of the necessary stock is concerned, depend entirely upon the trespass they commit upon others' lands for their sustenance. Roving, migrating herds of sheep and cattle, are found in all parts of the state, encroaching upon the domain, and consuming the forage that more legitimately belongs to the resident occupant and oftentimes proprietor. Not unfrequently a fine but perhaps limited district of country, adjacent to the home of the moderate stock-grower among the foot-hills, has been, though without fence, guarded and protected to a great extent of time and trouble, purposely to save its forage for a winter's supply for his own stock, and just as he is about to make it available and remunerative for his time and trouble, the eye of the ever trespassing, roving herdsman discovers it, and what would have served to have carried the stock of its rightful owner safely through the pinching time, is, by the far greater numbers of the trespasser's stock, consumed in a week, and he moves away leaving the resident's stock to starve. This, with a few other conditions of our stock husbandry are quite peculiar to California, and therefore cannot be brought under any rule of practice having precedent as a guide.

The evils, however, incident to our present condition, will eventually regulate themselves. Confirmation of titles to lands will have much to do with restricting the operations of the trespasser. A more extended system of fencing, by which certain tracts can be reserved with their forage exclusively for winter's use, will go far in preventing the recurrence of the annual starvation; whilst the general adoption of more of a mixed husbandry, securing a cultivation of the grasses adapted to the peculiarities of soil and climate, and a production of the cereals, with a consumption of their straws as food for stock, will have a still more favorable effect in mitigating the now annually recurring evil.



### MOOT-POINTS.

#### PEACH CURL, ACCLIMATION, ADAPTATION, ETC.

EDITOR CULTURIST:—It is assumed that the peach curl is not caused by insects, for the following reasons: First, the curl takes place at an early period of the season, when depredating insects, as ants, curculio, etc. are not yet in existence: secondly, insects would not be confined to peculiar varieties, as the young, tender leaves of the thick leaved kinds would be as exposed to depredations as others: thirdly, insects would not be partial to trees exposed to fog, as protected trees have been observed to be exempt from curl: fourthly, the curl has no respect to color; under Bodega fog, the Snow, Imperial White and Early Ann of the white do not curl; and of the yellow, Crawford's Early, Lemon Cling, Orange Cling and others are exempt. In the Atlantic states the serrated leaved kinds, as the Early York and



tion of Webster—"a supposed expansion of minute parts at the termination of radicles resembling a sponge for absorbing the nutriment of plants." We find Webster often very cautious in adopting the opinions of others, upon subjects he was not entirely familiar with; so, in this instance, he says, "a *supposed* expansion, etc." We have very carefully examined a great variety of roots and "rootlets," fiber and "fibrils," under the microscope, but have never yet been able to discover those mouths or "spongioles" that others *suppose* to exist. Upon this subject we find the following in *Gray's Botanical Text Book*, third edition, 1850, p. 81:

"It (the growth of the root) begins by the production of a quantity of new cells (by division) at the extremity of the radicle; *not on its surface, however, but beneath its thin epidermis and the superficial cells.* \* \* \* In this way the root grows onward by continual additions of new material to its advancing extremity; lengthening from the lower end entirely or chiefly, so that this part of a growing root always consists of the most newly formed and vitally active tissue. *The new cells, however, do not occupy the very point, as is commonly, but incorrectly stated. This is capped, as it were, by an obtusely conical mass of older cells,* consisting of the superficial tissue of the end of the radicle, pushed forward by the cell-multiplication that commenced behind it, as already mentioned. As the original cells of this apex wear away or perish, they are replaced by the layer beneath; and so the advancing point of the root consists, as inspection plainly shows, of older and denser tissue than that behind it. The point of every branch of the root is capped in the same way. It follows that the so-called *spongioles or spongelets* of the roots have no existence. Not only are there no such special organs as are commonly spoken of, but absorption evidently does not take place, to any considerable extent, through the older tissue of the point itself.

"As to absorption by roots, the inspection of the root of a germinating plantlet, or of any growing rootlet, even under a low magnifying power, shows that they must imbibe the moisture that bathes them by endosmosis through the whole recently formed surface, and especially by the hair-like prolongations of the exterior layer of cells, or fibrils, as they may be termed, which are copiously borne by all young roots. These capillary tubes, of great tenuity and with extremely delicate walls, immensely increase the surface which the rootlet exposes, and play a more important part in absorption than is generally supposed."

## MINING IMPROVEMENTS.

**T**HERE is no originality with man; his proudest achievements are but elaborations of hints kindly extended to him by nature. In art, science and mechanics, he is alike her entire debtor. Even in the sordid and not abstractly useful and noble pursuit of gold-seeking, she is the sole instructor. The experience of California miners has led them to observe and imitate her, and to assimilate their gold-saving processes more and more closely to hers. At the beginning, the "cradle" and the

"tom" were efforts towards an imitation, which was more nearly attained when the "ground sluice" and "hydraulic" process were subsequently employed. The last mentioned mode tears down and washes off the auriferous earth with all the power and effect of natural forces directed by reason; while the blocks and riffles lining the sluice-boxes, through which the dissolved dirt is conveyed, are only cunning substitutes for the gravel beds of natural water courses. These same gravel beds are now more closely imitated by lining the bottoms with cobble-stones, lapped one over another in regular layers, and inclining down stream. This idea was crudely adopted several years ago, rocks being piled irregularly in the sluices and there allowed to remain for an indefinite time. The plan now is so systematized as to be really valuable. Every section of sluice, or each box fourteen feet long, is regularly paved as above described, the stones held firmly down by nailing strips of board, five and a half inches wide, on each side of the box, and wedging a cross-piece under these strips at the end of each box. As soon as dirt and water have been allowed to flow over this gravel bottom, it becomes immoveable, as though set in mortar. The paving can be rapidly accomplished, one man being able to finish in a day twenty-five boxes, fourteen feet long and thirty inches wide, each. The material lies at hand in nearly every mining claim, and costs nothing but the labor of appropriation and selection.

The advantages of rock-sluices may be briefly stated. Those who have had long experience with them assert positively, that they save more gold than any other sluices in use, and a kind of gold which no other sluices save at all. Mr. Welch, of Indian Hill, Sierra county, who has two thousand, three hundred feet of rock sluice leading from his claims, declares that he saves twenty per cent. more gold than he ever did before out of the same dirt. He has thoroughly tested the matter by having alternate sections of rock and block sluice, and invariably obtained most gold from the former. He, as well as others, has observed that the rock-sluices save the most *fine* gold, the almost palpable powder of the precious metal, which is generally lost. For the same reason that more gold is saved, less quicksilver is lost. The rock-sluices also effect a great economy of lumber. All other sluices are lined with blocks of wood, about three inches thick, the cost of which, for each section fourteen feet long and thirty inches wide, is four or five dollars. These blocks have to be frequently renewed, owing to the great friction of rocks, earth and water rushing over them. In some instances they will not outlast twenty days of washing. This was the case in the claims of Mr. Welch, where the saving, effected by discarding blocks, amounts to a very large sum. In his two thousand, three hundred feet of sluice there are say one hundred and sixty-four boxes, that would require new blocks every twenty days; in three hundred days each box would cost, at four dollars for every new lining, sixty dollars; and the expense of the entire sluice for the same period would be \$9,840. In the Kentucky claims, at Sweetland—where may be seen a very handsome specimen of rock-sluice—the saving on blocks for sixteen boxes, at four dollars each, amounts to about sixty-four dollars every forty days that washing is done. Here, then, without reference to the superiority of rock bottoms as a direct

gold-saver, is effected an economy that would alone render many unprofitable claims sources of income to their owners. One more recommendation of rock-sluices is found in the fact that they offer fewer facilities for robbery. Thieves can help themselves in block-sluices by simply scooping up the amalgam as it lies in narrow crevices between the blocks; but here it is buried in sand among stones hard to remove and needing to be washed.

Rock-sluices are constructed upon a grade of from fourteen to sixteen inches for every fourteen feet; the heaviest dirt, or that which flows with least freedom, requiring the most grade. They cannot ordinarily be laid through tunnels, because these have to be run on as light a grade as possible—say one inch to the foot—and block-sluices are used in them as offering the least impediment to the flow of rocks and dirt. Their prime value is to receive the “tailings” at the mouth of tunnels, and convey them for long distances down hill-sides. The boxes are usually thirty inches deep and thirty inches wide, a greater width being obtained sometimes by constructing parallel lengths with a low partition. Flat, oval-shaped rocks, the size of a man’s hand, only thicker, and as hard as possible, are selected for the bottoms. When the miner wishes to clean up, say after washing ten or twenty days, the stones are loosened with a pick, washed off by allowing ten or twenty inches of water to flow through them, and then laid out until the boxes are washed down and cleaned of their golden gatherings. The whole process is simple, economical, and worthy of trial by every miner.—*Hydraulic Press.*

## EXPLORATION OF THE EASTERN SLOPE.

**E**AST of the Sierra Nevada lies an extensive, unexplored region, which many of the daring, enterprising and adventurous spirits of California are anxious to examine. It is customary for some people to decry every new enterprise, and wisely shake their heads, expressive of doubt and the idea of superior knowledge or judgment upon questions where certainty cannot be known. Some of the newspapers of California exhibit this trait, in their apprehensions and prophesyings that those who go to the Washoe country will find it to be another Fraser River humbug. Although we have formerly said that a different style of mining will be required in Utah from that most practicable in California, we in no wise discourage visits to, and the thorough exploration of that country.

Classifying the Washoe country with Fraser River is very unjust, and exhibits a want of reflection on the part of those who do so. The reports from Fraser River were unsatisfactory in the extreme; their very vagueness lent enchantment, and the fanciful imaginations of the adventurous Californians finished them to suit their desires. The disastrous rush to the gold mines of British Columbia was never justified by the reports from there, even in the exaggerated condition we received them.

Altogether different is our information respecting the Utah mines, and much longer



has it taken since the discovery of that vast wealth to convince the people of the truth of the reports, or to create an interest in the exploration of the country. Early last summer, mines of gold were discovered of exceeding richness, and later in the season it was found that the veins of quartz contained also silver. These discoveries, although reported from time to time, failed to attract much notice, and it was not till after repeated assays at San Francisco that the people believed the reports of the enormous wealth of the Washoe mines.

It is true that but very few veins have been proved to be rich, but these contain such immense wealth that their equals are worth seeking, even though much suffering, loss and disappointment should be the consequence. The opportunity is given for a poor man to transform himself from the condition of a laborer to that of a millionaire by a single discovery, no richer than those already made. Many veins of quartz have been discovered very much resembling those that are most valuable, and upon further exploration will undoubtedly prove of value. Silver is not alone the mineral to be sought; gold is known to exist, and the mines in the vicinity of Mono Lake have paid exceedingly well during the past season, and in other sections good prospects have been obtained.

It is common to say that the discovery of one of the rich silver mines would be of no use to the poor man, as it would require much money to develop it; consequently it would fall into the hands of the capitalist. Hammock and others, all poor men, discovered the rich vein at Virginia City: Hammock sold his interest for twenty thousand dollars; another of these poor men holds his interest, and has been offered forty thousand dollars for it, but refuses to sell. Was not the discovery of benefit to them? Capitalists have done very little towards developing the resources of California, and will probably do little for Washoe. Capital in money is cautious; capital in bone and sinew is bold and adventurous. Gold and silver mines usually furnish the capital that develops them.

There are many things besides mines to attract people to the Utah Basin. There are ranches to be located, hotels to be built, bridges and ferries to be established and many things to make up a settled territory. Through this, without doubt, will shortly be established a daily or tri-weekly overland mail, which will greatly enhance the value of property along the line; here, too, will probably be built a trans-continental railway; then, whoever possesses farms upon the route or its vicinity, will have a lasting and ever increasing fortune. The Eastern Slope now presents the finest opportunity to make a sudden fortune, or acquire a certain one, that has offered since the early days of California gold mining, and probably an equal opportunity will never again offer in the settling of United States territory.—*Placerville Observer*.



LIME is less important as food for plants than as a chemical agent, acting on the soil, and facilitating those decompositions which liberate the valuable ingredients it contains, and brings them into a state fitted for the use of vegetation.





beautiful feature of one of our oldest southern cities was doomed to eradication by an ordinance of the City Fathers.

The very first autumn after the extermination of the shade-trees, the city, which had for many years enjoyed a perfect immunity from yellow fever, was afflicted with one of the most severe epidemics, and has been more or less subject ever since to an occasional return of the disease.

A distinguished natural philosopher, Changeux, inferred from the results of his experiments, that the action of trees, and living vegetation, in the production of the effect under consideration, is twofold. 'Plants,' he says, 'whether odoriferous or inodoriferous, give issue to emanations, which, when mixed with poisonous vapors, exhaling from marshy or damp soils, neutralize their pernicious influence. But the former exercise a greater effect through means of the neutralizing process than by the power of absorption just mentioned; their emanations mixing with the air we breathe, and correcting its deleterious properties by virtue of the particular qualities with which they are endowed. The second class, the inodoriferous, on the other hand, act more evidently through means of their power of absorption than of the neutralizing property of their emanations, and remove from the air the vapors by which it is contaminated.'

Senebier, in his *Physiologie Végétale*, and other expert observers, ascribe the disinfection, not to the absorption by trees and other vegetable productions of the gaseous poison floating in the atmosphere of malarial localities, but to the purification of such an atmosphere through means of the large supply of oxygen obtained from living plants, and the neutralizing agency of that gas on the mephitic particles it meets with in insalubrious places. As to the manner in which the oxygen thus produced destroys or prevents the elaboration of the malarial poison, La Roche, whose opportunities for such investigations appear to have been ample, says some difference of opinion exists. The most recent writer on this subject, accessible to us, is M. Carriere, who, in his excellent, *Le Climat de l'Italie sous le Rapport Hygienique et Médical*, adopts, it seems, the views of Chevreul and Fontaine, in relation to the formation of the febrific poison through means of the action of organic matter on the sulphates contained in the earth, or in water with the aid of the oxygen derived from the former. According to Carriere, the leaves of plants and of trees, as well as the green substances that cover the soil, are all inexhaustible sources of oxygen, which is so important to sustain life and preserve health. This fluid, thus furnished, offers an obstacle to the action of organic matter. If the latter acts chemically on the sulphates, the other, in its turn, reacts on those compounds, and from the double antagonistic action thus produced, a state of equilibrium advantageous to the purity of the air, and the salubrity is re-established. Hence, to cover the fields, the borders of marshes, indeed, the whole extent of the soil, with an abundant vegetation, is to place on the surface of insalubrious regions a reparative apparatus of the greatest power.

But whatever may be the way in which trees and other living vegetable productions operate in counteracting or neutralizing toxical agents, floating in the air, it is a

generally conceded fact, that they do exercise a powerful influence in promoting the salubrity of malarial localities, and hence their plantation becomes an important part of agricultural economy. In urging, therefore, attention to their general cultivation, we cannot do better than condense the following remarks in relation thereto, from the work of M. Carriere, just quoted, which are as applicable to California as to Italy:

‘Dry soils should be covered with those trees which resist the wind, and grow on the sides of mountains, as the oak and all its varieties. The willow, laurel, etc., will suit best the humid parts of the plains. The culture of the pine, which contributes so much to the decoration of the peninsular landscape, as well as of all evergreen trees, deserves much more attention than it receives. But this, as it were, aerial vegetation does not alone suffice. There is another species of vegetation which must not be forgotten because it creeps over the soil and mixes with the waters. It is necessary that the means for the production of oxygen should be spread wherever this can act, down even in the lowest places, wherever chemical elaboration is at work. The cereals cover the whole extent of the meadows, (*maremmas*) especially in the Roman states; but the harvest leaves the earth exposed, during the hot season, to the solar rays. It is unnecessary to observe that this condition favors the development of miasmata, and gives power to epidemics—for it is well known that the fevers of autumn are the most grave. Hence it is apparent that some other culture than that of the cereals would be more favorable to salubrity. If the vine, for example, was spread over the plains, as is practiced in the south of France, the soil would be protected until late in the autumn; for the vine preserves its leaves until after the maturation of the grapes. In cultivating it for this object, a predominance must be given to the green expansion, or, in other words, to the productive apparatus of oxygen. In Italy, especially in the environs of Naples, this end is obtained by marrying, as it were, the vine to the willow, to the young elms, or to other kinds of trees, and thus prolonging the stems or main stalks (*les ceps*) by the multiplication of their points of support.

Besides these means, and in order the more effectually to subserve the cause of health, it would be advantageous to spread the sedge (*carex*) and other allied plants on the margins and in the beds even of the watercourses and canals, as well as on the dry land. Plants of this genus, it is well known, succeed everywhere in adapting themselves to places which present the most opposite conditions. By these means, a product of oxygen would be gained, and stagnant water and currents, with boggy margins, which stand so much in need of this gas, would not degenerate under the influence of the chemical decomposition of which they are the seat.’”

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**STABLING COWS.**—Different experiments show that stabling milch cows during an average of northern winters, increases their milk about *one-third*. In very severe weather the milk will be doubled; while in mild days less advantage results.

## "MY WIFE'S HEN SPECULATION."

ONE morning, as "my wife" was reading the grocery-man's bill, she exclaimed in a most surprised tone: "Six dozen of eggs in one week, at thirty cents a dozen!"—she drew a very long breath at this point, and I followed suit—"comes to one dollar and eighty cents a week!" "Exactly," I replied, rather sharp and prompt.

"I'd like to know what we are coming to?" inquired my 'better half.'

"That's my sentiments," I remarked, in a low tone, and raising my voice and speaking to a younger S—th, who was eating breakfast with me: "John, see what y'er coming to when y'er get married!" He smiled, I tried to, but it was very hard work.

"I don't believe," resumed my wife, "but what that grocery-man tucks on a cent or two, just because he knows *you* (that's me, thought I) won't say a word. I don't see why *eggs* should be so high!" There was a dead calm for two minutes—my eyes were resting upon the last boiled egg on the table in profound meditation. Just as I was about to remark that we had better get along with less eggs, I caught a glance of my wife's eyes, and concluded that it would be well to let her do the talking. "I don't see why," she again resumed, "that it should cost so much to live? We ought to raise all the eggs we want to use, ourselves."

"Good business," I said, "that of *raising* eggs." My wife continued:

"There's Mrs. G—, she haves all the eggs she wants and some to sell. She keeps hens, and her back yard is no bigger than ours. Now, lets we keep hens, we can save a dollar a week." John smiled, my wife smiled, I smiled, in fact, the whole family—even down to the youngest S—th, smiled.

"Good!" said I.

At this point my wife enlarged upon the merits of Chittagongs, Shanghais, Burham Pootras, Chinas, Dunghills, and a host of other different kinds of hens. This subject was the only one which was discussed at our meals for the next week. She bought all the different books relative to raising hens she could find in the book stores, and on the seventh day, the entire family had an attack of the "Hen Fever." Even the youngest S—th's attack was so severe that he rolled out of the cradle in attempting to clap his hands and crow.

The building of a hen-coop was decided upon. My wife was the architect. It was built after an original design, and resembled a patent sausage stuffer as much as a hen-coop. Her next proceeding was to send me to Rocky Hill, among her agricultural acquaintances, after a peculiar breed of hens—they were duly purchased and installed in our coop. So far, all right and successful. That night there was a procession of hens and chickens, headed by a dozen gigantic roosters, that reached the entire length of Main street. They, of course, paid a visit to my wife—and, of course, I made a speech—and they responded by such a tremendous crowing and cackling that it sounded as if Bedlam had broke loose. As each pullet passed my door, she made a most graceful courtsey and dropped an egg—the ground was covered, and looked as if there had been a snow storm of eggs. I filled the buttery,

cellar, garret, closets, and every possible nook and corner with eggs, and as I was about to put a two bushel basket full of them in the parlor under the piano, I stumbled and upset the entire lot upon that instrument, breaking every single egg—the yellow liquid run down through the keys of the piano, thence on to the nice Brussels carpet, all over my wife's dresses and furs—which had been brought out of the closet to make more room for eggs. That moment was one of great despair—clutching both hands into my hair, I screamed out one of the wildest and loudest shrieks that mortal ears ever heard.

"Goodness!" shrieked my wife, jumping out of bed and landing in the middle of the room, "are you crazy?"

"No, guess not," said I, waking up and collecting my scattered senses, "only an attack of the hen-fever."

Since that memorable night, six mortal weeks have passed, during which time, I have watched, fed and taken the best care of those "Rocky Hill chickens," and instead of saving a dollar a week, they have increased my expenses. Like certain bank stocks—I have given up all hopes of a dividend. I had looked regularly every day into that hen-coop only to be disappointed—not a single egg had they seen fit to lay. As the holidays were coming, I suggested to my wife, as the old rooster seemed to be an almost "useless" member of the coop, the propriety of ringing his neck. "Mr. S—th," said she, "I want you to know that that rooster *belongs* to me, and I intend to keep *him* whether the hens lay or not!" For the first time in my life, the green-eyed monster took possession of my breast. I vowed eternal vengeance upon that old rooster—just think of it, for a moment, my wife snubbing my nose on account of an old Shanghai rooster. "You can't expect them to lay this cold weather," said she, breaking the silence, "it is so cold. If they had a dose of red pepper, it might do them good!"

"Yes," said I, "red pepper might do them some good." Now's a good time to give that old rooster fits. Red pepper, thought I to myself. So I prepared a dose of red pepper for them, looking out to give my wife's old rooster a double dose. You can little imagine, Mr. T., with what infinite satisfaction and delight I watched the progress of affairs in that coop. The next day I actually found an egg in the coop; I marked it number one, carried it into the house and requested my wife to save it till she got a dozen. I gave my wife's rooster another dose of red pepper. The next day I found the second egg in the coop, and was about to mark number two on one end, when I discovered figure one—the very mark I had made the day before. I also noticed that the nest did not look much like a hen's nest. I remarked the same to my wife; she thought it was owing to the red pepper; I thought so too, and asked her to fetch the eggs in, after that time, and save me the trouble. The next day, egg number one was in the box; I wrote upon it, "*laid by Mrs. S—th, Dec. 21st, 1858.*" The next morning I found that that egg had been taken away, also that four out of seven hens were dead as a brick. For the first time in my life I was satisfied that my wife's speculation was a failure—that she was a woman not to be trifled with. Whether the death of those "Rocky Hill chickens" was caused



by the cold weather, or over doses of red pepper, or any "other cause" I am unable to state; but I never mentioned any suspicions to my wife.

The next day, a military friend called upon me, from Willimantic. (I forgot to state that I'm a military man.) I showed him the city. Said he, to me, "S—th, you've got a new hat." I said "Yes. Come over to the Clinton house." We went there, and our "labors" commenced and continued for an hour. My military friend invited me to the States, and again we renewed our labors. I then invited him to the Allyn house. There our labors became so great, our "hardships" so severe and other circumstances so numerous came upon us, that we came to the conclusion that we needed rest. He took possession of a lounge and rolled off on the floor—I followed suit. The next thing I remember, was my military friend whispering, informing me that he was going home on the first train.

"Come, S—th," said he, "you're a good fellow"—"I wish my wife thought so," said I, interrupting him.

I saw my friend safely aboard the cars, and had some difficulty in getting home—though nothing to speak of—excepting the side-walks, they were rather slippery; there were, also, several individuals who tried to see how near they could come to me and not run into me—I believed one or two inexperienced gentlemen run into me. I excused them, and all went well till I arrived home. As I was going into the gate, I concluded I would see if I couldn't find my wife an egg; and as I came within a few yards of the coop, my wife's old Shanghai rooster crowed out in the most insulting tone, "We-don't-belong-to-you!" Fired with indignation, I seized a clothes pole and made a furious charge upon the coop, determined to run the coop, rooster and all, through and through; but I stepped on a rolling stone and landed sprawling upon the ground; and, to make the scene more interesting, the wind carried my hat under the fence into Mrs. Bibbins's yard. There's not a family in the whole city that I dislike as much as the Bibbinses—there are seven of 'em all told, girls—but this time there were fourteen, all laughing and giggling to see me attempt to climb their picket fence. My boots were so heavy that when I got one leg up the other would pull me back. I was bound to have my hat, and was about to pull off my coat and boots and show the Bibbinses what I could do, when I heard a voice: "S—th, do for heaven's sake come into the house, you'll disgrace the whole family!" That's from my wife, thought I. Out of respect for my relatives, I postponed my feat of climbing Mrs. Bibbins's picket fence.

Since that day I have become a different man, and through the influence of my wife agreed to become a member of the "Totally Benevolent Moral Reform and Social Teetotal Abstinence Association," on condition that my wife would sell her "Rocky Hill chickens," devote the proceeds to the society, and get me elected treasurer of the association.

As there is nothing to carry to the credit of the hen account, you will notice the total expenses which have occurred—the result of my wife trying to raise eggs and save a dollar a week on the grocery-man's bill.

I append the following as the result of my wife's hen speculation.



<i>Hens.</i>	<i>Dr.</i>
To 7 Hens, @ 38c per head .....	\$2 66
1 Shanghai Rooster (full blood).....	75
Coop, lumber, cost of making.....	5 75
Lost time, hire of team, etc.....	4 50
2 bushels of corn, @ 80c per bushel.....	1 60
Miscellaneous items of feed.....	88
Red pepper (to make 'em lay).....	5
Medicines, etc. (for myself, during my "hardships" with military friend, lost time, etc., the result of an attack of the hen fever) .....	13 68
New hat, lost.....	4 50
Total expenses.....	\$34 35

*Inventory of the coop and contents, January 1, 1859.*

Value of the coop.....	99
Decrease of value of 3 hens in coop, 25c per head.....	39
Decrease of value of 1 rooster (not worth a cent).....	00
Total value of my wife's hen property.....	\$1 38

I am permanently yours,  
—S—TH,



**ROSES.**—If we would make our homes attractive, let us cultivate flowers. In no country does the same amount of care yield so generous a display of flowers as in California. The rose is queen of flowers; its varieties are beyond computation of numbers. If you cherish a love of roses you will have, for every leisure moment, occupation that will never tire. Your hands, your head—aye, your heart will be ever busy and ever refreshed. To make the finest display and the richest effect, the graft is superior to the bud. The budding plan answers for nurseries; but, in December, cut off the stem of a rose bush, at whatever height, and put in one or more wedge grafts, and you will have, in the following summer, a fine, bushy and symmetrical head of grouping flowers. If your stem has sufficient diameter, wedge in two or more grafts of differently colored roses, and the lightened effect is, beyond comparison, more attractive than when the flowers are all of one color.

Budding has this objection, viz: In its first growth, it is easily torn away by high winds, by the brush of crinoline and by every accidental contact; then it is a one-sided excrescence, marked by the disfigurement of a wound coarsely healed. After you have produced a fine symmetrical bush, with richly flowering clusters crowning the head, budding may be done, to give increased variety of colors, year by year; so that ever as your friends pass by, they will see new beauties and novel attractions. Whoso cultivates flowers nourishes the affections; who loves communion with roses and dresses her garden with fondling care has a heart, be sure, that is worth winning. When youth goes forth meaning matrimony, let it mark where cared-for flowers bloom; there let the young man enter, and he will find a heart worthy of his affections.

LADY B.

MALVA GROVE, San Francisco.





their milking developments, they are admired and sought after, wherever they are bred. Mr. Patterson has been breeding forty years, with a view to improve and develop this desirable quality. He has succeeded most admirably, and to-day could present a herd of milkers which would astonish the English breeders. We had rather own a Patterson Devon as a milk cow than a cow of any other breed—for we have both usefulness and beauty combined. When these essentials to utility, taste, and fancy are perfect, we want nothing more in a cow. We have found the pure Devons and their grades admirably adapted to the short and precarious grazing of the South. The milking Devons present the most attractive animals for gentlemen who only keep a cow or two in cities, towns and villages. Where they are confined to stables, and liberally fed on grain, they yield good returns of milk and butter. The use of a thorough bred Devon bull will improve any herd of indifferent cattle in a short time, and the continued recurrence to animals of pure blood with good food, will soon wipe out the defects which careless breeding and illiberal keeping have detailed on so many of the herds of the South. We may be over-partial, but when we have good fair milking qualities, symmetry of form, beauty of color, thrift and hardihood of constitution, to back our fancies, we feel safe, and write down the North Devons as the best breed for the improvement of the degenerate herds around us. We have many herds springing up in the South, bred with the utmost care with reference to the best points of this breed, and with a view to their adaptation to our wants. Amongst these are the herds of Mr. Peters, of Georgia, and Mr. William Summer, of Pomaria, S. C. The chance of obtaining *native bred and acclimated animals*, from such reliable sources, should not be under-estimated, when the fatality usually attending the acclimation of imported cattle is considered."

#### EVERY MAN HIS OWN NURSERYMAN.

**F**ROM all parts of the state we are constantly in the receipt of money to be invested in fruit tree seeds, and nearly all who send their orders express their determination to engage, to a greater or less extent, in the nursery business; or, at least, the raising of more trees than they will probably want for their own use. Of the feasibility of the project, in very many instances, we have not the least doubt, so far as the raising of trees is concerned; but there are many objections to such an enterprise, or rather to such a great multiplicity of little enterprises, a few of which we propose to discuss.

We believe that almost any business can be conducted upon a liberal scale to better profit than where the same amount of business is performed by many distinct concerns. Means and appliances can be procured for the preparation, culture and management of extended nursery grounds, that could hardly be afforded by the small operator. Efforts can be made to secure at the earliest possible moment any and all new fruits that may, from month to month or from year to year, be brought to notice

that could not be made by the small operator, except at a vastly disproportionate cost. A large nursery establishment will pay for constant, unremitted attention—a very small one cannot.

In large nurseries, men who perfectly understand their profession can be employed at corresponding wages, and such as the smaller nurseryman cannot secure, because they cannot afford to pay them. The nurseryman who makes it his leading business can certainly arrive at a greater proficiency than one who only occasionally gives it his attention. As a general thing, we should be inclined to think that greater accuracy would obtain in an establishment to which the proprietor gave his unremitted attention, than in one that only occasionally commanded it. There is hardly a legitimate nurseryman in the state, that has not already his bearing trees from which he can, with the greatest possible accuracy, obtain his scions for propagation. This the new beginner, in most instances, is deprived of; and, therefore, must trust to the honesty of others for the varieties he may wish to propagate. The one has a reputation established; the other has to make it; of which, we ask, would the orchardist be likely to secure his stock of orchard trees?

We are inclined to look upon the nursery business as a kind of profession, quite distinct from the common operations of farming, or the culture of orchards after they, with their desired varieties of fruits, shall have been set in their place as an appendage to the farm. The culture of the Chinese sugar cane is rapidly extending throughout many of the Western states, and, although any farmer has it in his power to become his own sirup-maker, it is found far more profitable to let this part of the effort, to render available the growth of the farm, go into certain hands that can bestow a better care, and produce a better article, because more experienced in its manufacture. Thus, single establishments are going up all over the states of the north-west, for the reduction of the sirup of the cane of large districts around them, because they can do it cheaper and better. So with the large nurseryman in the first growth and culture of nursery trees: the proper culture and management can only be attained in our varied soils and climates by years of experience. This being the fact, the new beginner, in a new locality, though he may finally succeed, does it at a risk that is not attendant upon the culture of trees in localities in which all the vicissitudes, changes, and effects of climate and soil have been studied and noted. We believe, to a very great extent, in a division of labor; and we should be inclined to risk more upon any article, the product of that division, than if otherwise—embracing every implement used in the cultivation of the farm or nursery, to that of the nursery tree itself.

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A RECIPE.—Whenever you get a black eye by a fall on the ice, or by running against a bed-post, or stopping a powerful fist, apply a cloth rung out of very warm water, and renew it until the pain ceases. The moisture and heat liquifies the blood and sends it back to its proper channel. Use warm water or hot, but never cold water to the bruise. A doctor would charge a dollar for this advice, but we give it gratis.—*Water Cure Monthly.*

## MORGAN HORSES AT THE FAIR AT ST. LOUIS.

**T**HE public have been apprised through the press that an association of gentlemen in St. Louis, Mo., have established an annual fair at that place, and offered very liberal premiums on horses, cattle, sheep, swine and poultry, all kinds of farm products, agricultural and mechanical implements, from a steam engine to a handsaw, and a countless number of fancy articles. All the states, the Canadas, and "the rest of mankind" are allowed to compete, making it, in my opinion, the most liberal, as it is the most extensive fair on the continent. The fair this fall was the fourth of the association, and eclipsed in numbers and grandeur all the preceding ones—some \$23,000 being offered for premiums. Not far from \$40,000 were taken during the six days of its continuance—nearly \$10,000 being obtained from refreshment stands, under the amphitheater.

The grounds are situated about three miles from the city, in a beautiful grove of fifty acres, for which \$50,000 were paid at the commencement—now it is valued at \$150,000. The association has expended more than \$50,000 in beautifying the grounds, and every year new and permanent buildings are erected, adding comfort and pleasure for the many thousands who attend this wonderful exhibition. Great credit is due the Hon. Richard Barrett, of St. Louis, their President, for his untiring zeal and devotion to the interests of the association. Many deserved compliments were paid him for his gentlemanly deportment to all classes. Messrs. Hunt, Todd and others, also gave their undivided attention to the interests of the fair, and sustained the efforts of the President in his herculean endeavors to make the occasion interesting and profitable to all.

But we commenced this article with the intention of saying something about our Morgan horses, which formed, indeed, the most interesting feature of the fair. It was a brilliant sight to see about fifty roadster stallions enter the amphitheater together to contend for the one thousand dollar prize. Each driver was required to dress in jockey style, and much pains had been taken to make the horses, harnesses and vehicles shine in superb order; and they did shine! I think I am warranted in saying that there never were fifty so fine looking horses brought together to contend for a premium, as these same fifty at St. Louis; and, best of all, forty out of the number had their origin in good old Vermont, or were from horses raised in our state.

This most liberal premium of one thousand dollars was given for the best roadster stallion, size, style, action and speed being taken into the account. Six of the best were retained in the amphitheater, from which to select the premium horse—all others being turned out. These six were all sired by old Black Hawk save one, and he was got by his son, the Myrick Horse, or Sherman Black Hawk. This horse, Green Mountain Black Hawk, now owned by Dorsey & Burke, Louisville, Ky., many thought should have taken the premium, as he combined all the qualifications necessary for a good roadster in a remarkable degree.

What a complement to our Morgans! What other state can vie with us in this wonderful breed of horses. It is a truly remarkable result, and should be hailed

by every Vermonter with pride and admiration. Stockbridge Chief, of Cincinnati, Ohio, was the successful horse, and truly a noble animal. And when the wide blue ribbon, trimmed with dazzling brilliants, was placed upon his proud neck by the President, the multitude gave vent to their feelings in repeated cheers. I felt indeed proud of my old Green Mountain state, when I saw how justly the great West is appreciating our noble Morgans, which may be truly said to be the best horses in the world.

Among the brilliant ring of horses, I noticed Stockbridge Chief, Green Mountain Black Hawk, Addison, Black Prince, Morgan Hunter, Silver Heels, Flying Cloud, Morgan Star, Wide Awake, Granite State, Henry Clay, Rising Sun, Lightfoot, Comet, and others whose names I cannot recall. Was not that a sight worth seeing?

Another fine feature of this fair was the display of blooded horses from Virginia and Kentucky—one thousand dollars premium had been offered for the finest blood or race horse, which brought quite a number together. Revenue, owned by John M. Botts, of Virginia, was the successful horse, though many were loud in their praises of Lexington, owned by Lord Alexander, of Kentucky. Lexington seemed to be the favorite, having made the quickest time of any of the bloods South, but his total blindness operated against him in contending for the premium.

One more one thousand dollar premium was offered for the best bull, and taken by Lord Alexander. His "Duke" took it, though there were eight or ten in the ring, very superb animals. Brown's King Alfred took a liberal premium in the sweepstakes ring, which was a compliment to Illinois. These were all Durhams, which are the favorite cattle south and west. May success attend the St. Louis fair! —JOHN GREGORY, in *American Stock Journal*.

### PROTECTION.

**I**N very many places in California we need protection; not that we care a fig for any kind of protective tariff—except it be a heavy duty upon every importation of the Mongolian race—nor do we ask the interference of the Legislature or Congress in the matter we are about to present, because neither of these very important (?) bodies can give us the protection we would crave. We want something by which our homes, our gardens and our orchards can be screened from the strong inland blast of our summer trade winds. There are thousands of farms, and tens of thousands of acres of some of the finest arable land in the state, lying within the reach and sweep of these winds, where, except in some little protected nook or deep ravine, or on the leeward side of hills, not so much as a single tree exists, and never will unless we aid nature a little in the start; because, first, there is not the seed there from which a tree can grow; and if put there, it could not grow erect, if so fortunate as to grow at all. In some few instances we do find an oak growing under full exposure; but, in such cases, the limbs, like a cock's tail feathers, beautiful enough in their place, are all hanging one way from the stump or body.

With proper protection, and such as is in our power to grow, this one-sided condition of the limbs of trees can be almost wholly avoided. We must grow belts of living trees, of sufficient density and breadth, and in the proper positions to break the violence of the summer gales; for, not only are they of service in protecting from the force of the blast, but they possess a peculiarly modifying and softening influence upon the quality and conditions of the wind, rendering it more congenial to the habits, growth and perfection of all the finer arboricultural and horticultural products. Orchards and vineyards cannot be grown in perfection, even in our boasted California climate, if exposed to the direct sweep of the ocean winds, until they shall have passed far inland.

But first grow a screen or belt of timber upon the windward side, or commence its growth, and the garden and all low-growing shrubbery can follow the year after, and the succeeding or second year, the orchard. But how are we to grow this belt or screen of timber? It is easy enough, only set about it in the right way. There are, in all countries, some kinds of shrubs sufficiently hardy to withstand any and every vicissitude of climate. Let these take the outer and front rank, and don't be sparing of ground, nor suppose that a single row, of any description of plants, will offer full protection; you must give breadth to the belt, or you fail in your object; and a good rule to be observed in this is, let the outer or front rank of vegetation have twice the width on the ground that it will attain in height.

Let the second rank of vegetation be of taller growth, and a width equal to its height is sufficient. The third and last rank may be of yet taller habit of growth; whilst a single row, or at most two, at a proper distance apart, and the trees of one set opposite to the openings of the other, and you secure a perfect barrier against the worst winds that anywhere prevail inside the coast range, or to very many directly upon the open coast with a full exposure to the ocean winds. In other countries than California, as upon the broad prairies of the western Atlantic states, where the object is a protection from the bleak blasts of winter rather than summer, the different varieties of rapidly growing evergreens, constitute the most desirable materials for the formation of these screens; their perpetual leafage, with their inflexible, upright habit of growth, constitute two important requisites in trees for this purpose. But here, where the summer winds only are to be met, deciduous trees are but little inferior to evergreens.

Shrubs and trees for screens should be of rapid growth, perfectly hardy, with a staunch, upright habit of growth, particularly the rear rank or taller trees, and all of them possessing as much of beauty as they can be made to attain with their peculiar conditions of climate. From our own successful experience in the growth of one such orchard screen, upon a western prairie, we would advise their growth, in all cases where practicable, from seeds planted in the places in which they are to remain, and next to this, from very small trees. The reason for this is, that such trees as are never removed, or if removed at all, so small as to suffer but little loss of root, will more certainly and sooner send down their drought-sustaining roots deep into the earth; and we would further imitate nature by planting different species and varieties



of trees and shrubs, the more certain to secure, among them all, enough that may prove hardy and well adapted to the purpose, situation, soil and climate.

As the belt increased in effectiveness and strength, the honeysuckle, the climbing roses, and even the vine could be allowed to twine their tendrils among the larger trees, with the most pleasing effect. Upon this subject we find an admirable hint in one of our eastern exchanges, which we appropriate. "A little care, and the exercise of good taste in selecting and planting, would give a natural air to the plantations that would greatly lighten their beauty and add to their usefulness. The whole should be planted on thoroughly prepared soil, by which, we scarce need add, we mean deep plowing and the addition of such fertilizers as may be necessary. Care should be taken not to crowd the specimens, and they should be carefully cultivated for several years. If large trees are planted, they should invariably be mulched; but we would not advise planting large trees; it costs too much, besides there is but little gain. It takes such trees too long to recover from the effects of the removal; besides they are never thoroughly at home."

Now, were we to ask why these trees "never are thoroughly at home," and then be permitted to put in an answer, it would be this: A large tree cannot be easily removed without the loss of many of its deeply running roots or tap-roots; from the very nature of the case—at least experience shows it to be true—that such a tree, if large, never does renew them, or but imperfectly; of course, it never is again a perfect tree as nature first formed it.

Now the question may be asked, What kind of trees would you plant for such a screen? We answer, that for the outer or front of the belt, we would take the common species of Malva or Mallows; because it will thrive in almost any situation that possesses enough of soil to cover its roots. Next to these, or second in rank, we would put the yellow locust; and lastly, our own native, or the English walnut. Among the latter, or both the locust and walnut, raspberries and blackberries can be grown to profit until the shade becomes too dense. The species of trees, however, will depend much upon the nature of the soil. In some very low, moist situations, it might be better to substitute the willow for the mallow, the alder and California maple for the locust, and the sycamore for the walnut, or there may be a mixture of all the kinds named, together with the wild plum and other varieties of hardy fruits. Of course, it must be a matter of experiment to ascertain just which are the best varieties for particular localities. But that, in every locality in the state where it is desirable to grow such protective belts of vegetation, varieties of plants and trees can be found in abundance, and abundantly hardy for the purpose. The main first feature necessary in securing success is, that the first or outer portion of the belt consist of a low growth and tolerably thickly set, though it is not important that it should be what would be termed a compact or really dense mass of foliage; indeed, it is better that it does not present a perfect barrier to the full force of the wind; it is better both for the growth that composes it, as well as for that in the rear of it.

These timbered belts, upon our now treeless plains, would not only afford the protection absolutely required for the success of orchards there, but they would be the

means of beautifying the landscape, adding to the salubrity of the climate, the health and comfort of man and his domestic animals, by their influence in neutralizing the noxious vapors and miasmatic exhalations; and not the least, by their cooling and grateful shade. Our mountain readers, beyond the reach of the crushing trade winds of our valleys, will bear with us for occupying so much space upon a subject that so little interests themselves; but which we can assure them, is occupying the minds of many more of our bay and lower valley farmers, than ever find time or opportunity to put pen to paper on the subject; and who have desired that we should give the discussion of the subject a beginning.

## HORTICULTURAL PRACTICES.

BY WILSON FLINT.

EDITOR CULTURIST:—I have perused the ably written article of Mr. Johnson, in your February number, with much pleasure; first, because it is indited in a courteous spirit, and lastly, the writer seems desirous of eliciting facts instead of theories. Before proceeding to answer some of the propositions made, I may be permitted to quote a passage in his remarks, viz: "Mr. Flint says: 'It is noticeable that, on the deep, alluvial bottoms of some of our rivers, where the tap-root penetrates to a great depth, the trees make a prodigious growth of sappy, spongy wood, destitute of fruit spurs.' Will Mr. Flint have the kindness to point to a particular locality? The mere repetition of a fallacy, word for word, promulgated by the editor of the *California Farmer*, merely for the purpose of giving vent to his personal malice against Mr. Lathrop, of San Jose, is not what is desired as a guide in horticultural practice, unless it can be proven that it is not a fallacy." I was not aware that I had committed a plagiarism on the editor of the *Farmer*; if my language is his, "word for word," it is because they are the appropriate words to form a concise and meaning sentence, and are to be found nearly as I have used them in Loudon on Arboriculture. Neither can I consent that they are a fallacy, merely upon the argument that they have been used "for the purpose of giving vent to personal malice." I have nothing to do with "personal malice;" I shall only discuss the tap-root question—the editor of the *Farmer* is abundantly able to defend his own motives.

Mr. Johnson desires me to point to a locality, where "the tap-roots have penetrated to a great depth, making a prodigious growth of sappy, spongy wood, destitute of fruit spurs." I will name two; the first, the McMurtry orchard, on the San Lorenzo creek, Alameda county, of sixteen thousand trees, a portion of them planted in the winter of 1855. The soil is a dark, sandy loam, twenty feet to the bed of the creek. These trees "have made a prodigious growth of sappy, spongy wood, destitute of fruit spurs." The other locality is my own place, on the alluvial bottoms of the Sacramento river, between Stockton and Sutterville. The soil here is alluvium, twenty-five feet to a thin layer of quicksand. Apple trees that have been planted six years,



with the ground as the fulcrum. Does such a tree present a favorable aspect for fruit-growing? Is it in reach of the pruning knife and fruit basket? Is not its trunk exposed to the blasting effects of the summer's solstice? Is the tap-root, which becomes confined to a narrow limit, enabled to gather sufficient food in its delving career of "down, down, down?" Would it not be more in accordance with nature and art, that a tree should branch low, with a wide-spreading head and an equal proportion of far reaching roots, particularly one designed for fruit-bearing.

Now I do not wish to be understood as condemning tap-roots; I am aware that they perform important functions, they being "roots that drink." Eminent English writers state that the practice is adopted in many parts of their country, of placing flat stones under the tree on planting, so as to give a greater spread to the roots. As before stated, I would prefer that the tap-root should be shortened, on planting out a young tree, so as to induce the uniform distribution of roots on all sides; afterwards, if the intention is to let the tree shift for itself, its roots will naturally become of a top character; while, if a judicious, careful cultivation is given the soil, they will remain near the surface, within the influence of light, heat and air—"requisites to the healthy functions of the tree." Chorlton, in his valuable treatise, "the American Grape-grower's Guide," says: "Avoid deep planting in all cases; for it leads to cankered roots, and places them out of the reach of the warming influences of the sun and the exhilarating action of the air, both of which are as beneficial to them as are light and heat to the leaves and branches." In the great nurseries of Europe and the Atlantic states, the practice of annually transplanting nursery trees, which are to remain for increased age, has gained general favor—the object sought being to obtain the largest amount of fibrous roots near the trunk of the tree: in this manner, trees in full bearing condition are removed to the orchard with safety.

There are those who advocate the planting of the seed where the tree is to remain; this might answer for the amateur culturist; but for extensive orchard enterprises in a climate like California, where it is so difficult, even with the best of a nurseryman's facilities, to get seeds to germinate, it is not worthy of serious discussion.

Mr. Johnson asks, "Will not the effect produced upon tree and fruit, depend much upon the nature and condition of the subsoil, its fertility, humidity and warmth." I answer, it will; because, in the ratio as it is porous and containing the nutriment elaborated by atmospheric influences, proportionately will be stimulated vegetable action. In the mountain districts many orchards are planted on a thin soil, underlaid by a talcose slate; on such ground the tree can "sink" no tap-root, and by necessity becomes a surface feeder, yet these trees flourish in a remarkable degree, coming into early and amazing productiveness.

Mr. Johnson states: "Now it may be that an abundance of water will produce soft, spongy, fruitless wood upon the apple, and just the reverse upon the vine; but really, upon what principle in vegetable physiology such a proposition is based, I am at a loss to determine." I answer, that the apple bears its fruit on spurs or buds, formed on the previous year's growth, and are the fertilized secretions, produced after the upward flow of sap has nearly ceased in the latter part of summer, at the time



do the act of destruction, the greatest friend of the unfortunate tree will hardly express a regret that it is gone.

Now, there is something certainly wrong in this; and the veneration in which the tree is held, is certainly much beyond its merits when it obstructs some particular view, shades some important border or building, or prevents the effectual accomplishment of some interesting alteration. Many windows are deprived of half their usefulness by large trees growing too close to them; and it is also a certain fact that many chimneys are made to smoke the rooms in a like case. It would be wrong to condemn that feeling which venerates old or fine trees; but when such stand in the way of an acknowledged improvement, the proper question to ask is this: If the tree in question was not there, would you wish to have it in that place?

If the answer be in the negative, then cut it down immediately, for it cannot be wanted. But it is not my purpose here to find fault with the propensity we mostly all have of clinging to something or other, but to complain of the practice of growing large fruit trees in kitchen gardens, as the apple, pear, and cherry trees are often found high enough to require a thirty or forty-round ladder against them to gather the fruit. These towering objects are much more hurtful in the kitchen garden than is generally allowed; as their roots, in the good cultivated mold of a kitchen garden, run a great distance, and the crops underneath are very indifferent in quality. As most gardens are more or less frequented by the family and their visitors, good, useful crops are certainly much more interesting than poor ones, with an indifferent crop, perhaps, of apples or pears on the trees which overhang them. Besides which, it so seldom happens that there is a good crop on trees planted so very widely apart, that it is much better to have all such trees growing in one place, and only so near each other as to occupy the ground without crowding. The ground on which such trees are growing might either be in tillage or in grass. If the former, some small crops, as currants or gooseberries, may be grown at distances of six feet apart; but the digging among these must be very shallow. There are hundreds of acres of orchards of this kind; and the same may, with equal advantage, be grown elsewhere. The object here advised is to relieve the kitchen garden of those high and over-shadowing trees which injure and disfigure so many plots of vegetable ground.

Now, in addition to the evil done by trees inside a garden, those outside it are often too near it. High trees on the south side of a garden overshadow it very much in winter; and fruit trees against walls so deprived of the sun in winter never do well. Trees are also liable to send their roots long distances foraging; and the more robust kinds quickly devour the fat of the land. I have seen a root upwards of fifty feet long, and nearly as thick at one end as the other, where it had got into a line of good material, and speedily found its way to the furthest end of it. Trees on lawns will also search out flower-beds, and occupy their enriched contents, with astonishing rapidity, to the detriment of the proper tenants there; while peat or bog-earth, of prepared plant-borders, is especially liable to invasion. It is, therefore, advisable in all these cases to keep a watchful eye on the intruder; and when the offending tree cannot be taken away, cut back its roots within its own territory. Supposing it to

have usurped a flower-bed in the lawn, merely cutting its roots at the sides of the bed and renovating the soil, would only be to invite it to another feast, which, if in the growing season, it would swallow up in a very short time. But cut back its roots by making a ditch about two feet or so from the edges of the bed, and fill that ditch with something distasteful to it. Chalk rammed in hard answers pretty well; or, if it must be earth, let it be of the poorest kind. Some run to the expense of a brick wall; but I do not advocate that, as it is not always an effectual barrier. I once knew an excellent garden wall, with peach and other trees on the south side, and on the other side timber trees of various kinds were growing close up to it; and whether the latter smelled the better material their more delicate brethren had to grow on the south side, or by the poverty of their own side felt themselves justified in the invasion, certain it is that in two years, the whole of the twelve-foot-wide border on which the peach and other trees were growing, was filled with ash, elm, and chestnut roots. It is needless to say the peach trees suffered sadly, the evil not being discovered until much mischief had been done. It is, therefore, advisable for all who have timber trees growing in the neighborhood of their cultivated grounds, to look well to them, that that they do not usurp more than their share of space. It is also advisable for all who plant fruit trees in gardens, to consider whether they are to become standards or not; and, if any danger of the latter, try and plant them somewhere else; for it not unfrequently happens, that a small tree is put in under the plea that "it can do no harm," which, growing up into, perhaps, a fine one, is then too good to cut down, and damage to the crops and irregularity in appearance are the results.

In condemning large standard trees in gardens, I by no means find fault with the trellis-trained ones which form so important a feature in some gardens. On the contrary, where the roots of a tree can be made to occupy the bottom of a walk, or other piece of ground not under cultivation, and its top likewise not being detrimental to anything near it, the tree then is not only excusable, but highly recommendable. Tunnel-shaped trellises have become fashionable of late; but where a large quantity of fruit has to be grown with the least possible trouble, be assured that large, full-grown trees are the best to produce this. Training in fantastic forms may please the eye; but the larger fruits, as apples, pears, plums, cherries, and the like, bear the most plentiful crops when not too much cut. This, however, is foreign to the subject in hand, excepting so far as to give additional reasons for not having too many fruit trees (trained or otherwise) in the kitchen garden; and be sure to keep the more voracious timber trees at a safe distance. Shelter from cold winds is often urged as a reason for having them so near; and when the belt in the rear of these is narrow and thin, it is not prudent to cut much away without due consideration; but where there is plenty to work upon, let the ax and mattock be freely used, and it will be found that trees, at fifty yards' distance from a wall, shelter it nearly as much as when only at fifteen yards, while their shade is less hurtful. The same may be said of buildings and other towering objects.—J. ROBSON, in *Cottage Gardener*.

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The effects produced by the growing of large trees upon products that find a place



under their shade, or within the influence of their roots, are, to a very great extent, true, and applicable to the soils and climates for which the foregoing remarks are intended to apply; and yet, strange as it may appear, California is such an anomaly in matters of climate and soil, and peculiarities of vegetable growth, that almost the opposite effects are the results of the same causes. Thus, upon the great body of the foot-hill lands, the largest burden of grass in the natural pastures or grounds reserved for mowing, is invariably found under the shade of the broadest spreading, evergreen, as well as deciduous oaks; and many berry-producing plants are also produced in much finer perfection where partially shaded, than if exposed to the full blaze of our almost tropical sun.

Nor does the impoverishment of the soil, by the growth and the feeding of its roots, have the same influence upon minor vegetation that we see in other countries. Hence, nature, as if she knew what the tree wants most, sends its roots deep beneath the surface, where moisture and sustenance can always be secured. The principal growth of trees being in summer, the surface soil is never filled with roots, because too dry for their occupancy. As the trees increase in size and widen in their branches, the cooling effects of their shade, during the middle of the day, is rather grateful than otherwise to such vegetation as finds a home in the unimpoverished surface soil. Experience proves it; thus we repeat, that California, in not a few of its phases of vegetable growth, is an anomaly among the countries of the earth.—ED.

#### CHEESE-MAKING—SKILL MORE THAN SOIL.

**T**HE *Country Gentleman* discourses in this wise: "An objection frequently brought forward, if the farmers of one locality are asked why the cheese they make does not sell at so high a price in market as that manufactured by their brethren in other localities—is 'that the land is not adapted for cheese-making, and that it would be almost a waste of material for them to attempt to make good cheese.' A recent English writer in commenting on this fact says: 'On further inquiry as to whether it is the peculiar geologic formation, or any remarkable difference in the species of grasses peculiar to the district that is the cause, I am again informed, this time rather dogmatically, that the land is not adapted for cheese-making, and that 'it's no use asking any more questions, because everybody knows that it isn't.' Being thus thrown upon my own resources, I refer to my geological map, and endeavor to throw a little light upon the mystery by its aid. In vain: for I find that the three countries of England producing the best cheese are not situated on similar soil. Cheshire is on the new, red sandstone; North Wilts and Gloucester are on the oolitic limestone; Cheddar on the carboniferous strata.'

"Mr. Tegetmeier, the writer alluded to, accordingly concludes that the cause of the differences must be sought in other sources; and there is little doubt that it depends almost entirely on the process of manufacture.



“In fact, this conclusion is borne out by further testimony; the agricultural association of Ayrshire, Scotland, have made it the subject of careful inquiry, actually sending a deputation to inquire into the plans adopted in those countries of England which produce the best cheese. The decision at which they arrived was, that the quality of cheese depends wholly upon the observance or non-observance of certain simple precautions, and that the price of the cheese depends wholly upon its quality. They were better pleased with the method adopted in the Cheddar district than with any other; the best Cheddar cheese always realizes from sixteen dollars and twenty-five cents to eighteen dollars and seventy-five cents per cwt., while that of inferior quality may be unsaleable at half this price. The general principles of the method are stated as follows:

“‘The milk is employed without the removal of any of the cream; for, as might be imagined, butter and good cheese cannot both be made out of the same portion of milk. The liquid used to coagulate the milk is rennet, which is obtained by steeping in water the salted and dried stomach of the calf; these *vells*, as they are termed, should never be used until twelve months old. It is a remarkable proof of the power of the animal juices, that the rennet obtained from one vell is sufficient to curdle enough milk to make half a ton of cheese. Before the rennet is added, the evening and the morning milks are mixed together, and the temperature of the whole is raised to eighty degrees, by heating a portion and mixing it with the remainder. In one hour the whole is coagulated. Portions of the whey are then drained off and heated. The whole of the curd is now minutely and most carefully divided; after which, as much of heated whey is added as will raise the temperature again to eighty degrees. It is then left for an hour, when the whey is drawn off and heated rather higher than before. The curd is again minutely broken, and pailfulls of heated whey are forced in, so as to raise the temperature to one hundred degrees. The whole is constantly stirred during the time, so that the curd becomes somewhat consistent. It is then left half an hour, in order that it may settle, when the whey is dipped out, and the last portions drained off without pressure. The curd is then cut into large slices, turned, and allowed to drain for half an hour, and when its temperature has fallen to sixty degrees, it is subjected to a moderate pressure for half an hour. At the expiration of this time, it is broken fine in a curd mill, and the best refined rock salt added, (in the proportion of two pounds to one hundred weight of curd) made into cheeses, and placed in the cheese-press. The next morning it is turned and pressed again; and the third morning it is laid upon the shelf, having been previously laced up in a piece of canvass, to preserve the shape while drying. The drying is accomplished in a well-aired cheese-room, kept at a temperature of from fifty-five to sixty degrees.’

“Spite of all that prejudiced ignorance asserts, there is no doubt but that the inferior character of certain kinds of cheese depends mainly upon three or four causes: firstly, on the impoverishment of milk by the removal of the cream; secondly, on the employment of an excess of rennet, which produces a too rapid coagulation; thirdly, on the use of too high a temperature, from which results a hardness of the curd; and lastly, on the occasional want of cleanliness in the dairy. In the Cheddar

plan—the low temperature of eighty degrees in the first stages gives richness of taste, and the greater heat employed afterwards renders easy the separation of the whey. The most extreme and ultra cleanliness is absolutely indispensable, as a single drop of milk sinking into an absorbent floor will cause the cheese made during a whole season to become sour and valueless.’”

### TERRACING.

EDITOR CULTURIST:—As our hills are becoming valuable, and are being fenced in, especially about our villages, it becomes all important to know something about *terracing*: this must be done in order to make them really valuable. Can you, sir, or any of your correspondents give any information on this subject. It may concern many of your mountain subscribers to know something of this matter, especially where the hills are steep and can be watered. Is there any rule, and what is it? Should be much pleased to hear from you. Respectfully, &c.,

GRASS VALLEY, Feb'y 9.

W. P. GOLDSMITH.

Where the side-hill is too steep for cultivation, yet the soil is not rocky, it may be made productive and much more attractive by terracing. This applies especially to the vicinage of towns where land is valuable and locality of importance. For mere farming, it would not pay. Terraces are made by cutting down the hill as you would for a road, exactly—the object being to make as many level platforms as you can. In the states, and more so in England, it is usual to batten up the lower side of the terrace with sod, giving it a slant inwards, and making it more or less steep, according to the angle of the general ascent; the steeper, the more picturesque is the object; but, in this dry summer climate, the slope, unless walled up, should be easy enough to grow some verdure by the aid of irrigation. There is one rule of good taste that is imperative. Never make a straight terrace. Give each the greatest and most wavy curvature you can. Before you put your spade in the ground, let your plan be made; it will save you from expensive rectifications of blunders. We speak of spading; but the hill-side plow and scraper will do the work at one-fourth the cost, if the grounds are extensive enough—say a line of two hundred feet.

To make terracing at all successful in California, irrigation is essential. Do not go to work without previously providing this indispensable element. In nearly every town among our foot-hills, and in all our mining towns where water ditches course along the hill-sides, all of the land below the ditches that is not rocky, is suitable for terracing; and within a mile of town it will pay. As a general rule, fruit blossoms on such places escape the spring frost blights which visit the orchards of the flats below; and everything that grows bears greater, longer-keeping fruit—from the potato to the apple. But the difference is greatest in the grape. No vineyard, whether its purpose be for raisins, for wine, or for the table, should ever be set out anywhere but

on the hill-side. For this purpose, terracing will pay on any breadth of scale. So for hops. In each case, poleing and trellicing can be in great part dispensed with—the vines trailing over the slopes. In this way, if the horrid over-hacking of the pruning knife be spared, which brings ruin on many a vineyard, the most beautiful crops of the finest flavored grapes will be produced under the deep, leafy shade which the grape courts in this land of unrelieved sunshine.

What we call half-terracing would bring into value a vast body of land bordering our valleys and now nearly valueless. Take, for instance, a beautiful place in the vale of Napa. Through the waste brush hills, back of an elegant and park-like estate, there runs, with swift descent, a stream of perennial water. Barren looking hills jut out into the low lands to which cultivation is confined. Even the vast orchards of that estate occupy exclusively the low lands. Now, by a cheap dam, the waters of the rivulet can be led so as to irrigate a large area of the foot-hill land; and this, by half terracing—that is leveling and easy sloping, as the varying declivities suggest—could be made the finest orchard and vineyard land in California. We venture to say that it would give immunity from the spring frosts, which, year by year, make such havoc among the orchards and vineyards of the richer plains within only a gun-shot off.

This is a subject worthy of attention. Depend upon it, the orchardists of California have not made the wisest choice in placing their trees in the frost-biting flats; and they who, perceiving this, will now plant out fruit trees on the terraced slopes which overlook them, will rejoice in abundant crops, when those below will not have fruit enough to cover the costly attendance of this expensive country.

ANTHRAX.

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To the foregoing practical views on the subject of terracing, we would add a hint or two. In all cases, let the width of the terrace be no greater than just sufficient to give a desirable height to the bank of the same, which should never exceed five feet. This is for the convenience, not only of turving or walling up the bank, but also the training of vines upon the slope; if more than five feet in height, they are also more costly of construction, because requiring a deeper cut on the upper side for the formation of the terrace. The rains, or the waters of artificial irrigation, should never be permitted to flow over the terrace; but should be confined to a small ditch on the up-hill side of every level, or rather grade, or, which is the same thing, at the foot of every terrace bank. If permitted to flow over the terraces, powerful rains would wash them away. Every grade should have just sufficient fall along the foot of the next bank above it to carry away, in its ditch, its own surplus water; and it should have no greater descent than just sufficient, and prevent it from flowing over the terrace below.

During moderate rains, small dams, made of a shovel or two of earth, at intervals along the ditch, will retain the waters that might otherwise pass off without fully saturating the terrace. In case of a heavy rain fall during a night, these dams should

not be of a height or solidity sufficient to throw the water over the surface level and down the banks, but should be such as would be easily washed away by such excess of water. It will be found difficult to support the banks with any of our grasses, unless an abundant irrigation can be secured. Stones make an excellent bank protection; they should not, however, be made into a thick, heavy, perpendicular wall, supporting the bank, because such walls are the most perfect homes for vermin that could be well devised; and, what is more, the earth against them will become too dry for the roots of vegetation.

First, make a sloping bank of earth at such an angle that it will be likely to stand alone; then face the bank with a complete single layer, or covering of cobble-stones, or any kind of stones the easiest procured; avoid making or leaving cavities between the stones, as these harbor squirrels, mice, etc. The wall of stone is merely to keep the earth bank from crumbling down. No vegetation should be set nearer than three feet of the edge of the terrace. This distance gives ample room to pass around any description of tree, bush or vine that may occupy it.

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#### SMUT IN WHEAT.

EDITOR CULTURIST:—We take the CULTURIST, and find in it much that is useful; in it and the *Farmer*, I have seen great complaints of smut in wheat, and I think soaking the seed in blue vitriol is recommended as a preventive. I do not say that it is not one; but I do say, that I have used lime, with unfailing success, from 1806 to 1849—forty-three years—on my own farm in Surry, Hancock county, Me. My father moved to Surry in 1804; in 1806 we determined to try a crop of wheat, and bought three bushels of one of our neighbors who had raised some the year before; we had lived in Cambridge, Mass., where wheat was not raised, and it was supposed could not be, on account of the great quantities of barberry bushes, common in that neighborhood (*berberis vulgaris*).

Being, therefore, entirely ignorant, as to the proper mode of cultivating wheat, we took the course recommended by an old Irishman that lived with us. He said that he had always, at home, (Ireland) seen seed wheat soaked in beef pickle, and then dried with slacked lime. We put our seed wheat into beef pickle, and kept it in twenty-four hours; then skimmed off all that rose to the top of the pickle, and were careful to separate and throw away all the foul seed and sediment at the bottom of the cask; then spread the wheat on a floor, drained it, and then dried it perfectly with slacked lime. The three bushels of wheat was sown on three acres of ground. As there was not soaked wheat enough to sow all the ground that had been prepared, a little more was obtained from the same person, and sowed without being soaked or limed. The crop was a good one; all that was produced by the soaked grain was very fine—perfectly clean, and entirely free from smut; that obtained from the grain that was sowed without washing or liming, was quite smutty. Our neighbor, from whom we obtained our seed wheat, sowed his dry, without either washing or liming,

and the crop he raised was so smutty, that it was not fit to eat. The next year, we prepared our seed wheat in the same manner as the year before, and had equal success—no smut at all. The year after, we soaked and cleaned our wheat as before, but having no lime, we dried it with house ashes, and the crop was smutty.

We then naturally came to the conclusion that it was the lime, not the beef pickle, that was a preventive. In the spring of the next season, we prepared the smutty wheat we raised the year before by soaking, as before, and drying it with lime, and our crop, in the fall, was perfectly pure—not a kernel of smut in the whole crop. In 1816, we purchased Sir Arthur Sinclair's Code of Agriculture, and there found our experience fully confirmed by his experiments. Sir Arthur Sinclair wished to ascertain the cause of smut in wheat; and for this purpose he took two parcels, one smutty, the other free from smut, washed each in pure water, then examined each separately with a microscope, and found the water, in which the smutty grain had been washed, full of a small insect, not visible to the naked eye: that which was free from smut, was without the insects. Sir Arthur then tried to destroy the insects by putting into the water different substances, believed to be destructive to insects, and found nothing that would kill them till he dropped a lump of lime into the water in which they were, and it destroyed them instantly.

In 1817, our wheat was treated in the same manner, and with like success; but, in 1818, we had no lime, and thought we would try drying in plaster, having, at that time, a great quantity of ground plaster on hand; and, although we had a very large crop—the largest I ever knew raised in Maine, thirty-five bushels to the acre—the value was not so great, as it proved to be a little smutty. After that, till I came to California, in 1851, I continued to soak my wheat, before I sowed it, in strong beef pickle, took off everything that floated, and all the sediment at the bottom of the vessel in which it was soaked, drained it, and then dried it with slacked lime, and never had a kernel of smutty wheat in the whole thirty-two years.

VINE SPRINGS HACIENDA, COLUMBIA, Feb'y 9.

E. S. JARVIS.

### RAISING HOGS ON THE TULE.

EDITOR CULTURIST:—You ask me to give my experience in the raising of hogs on the tules. As I have never seen anything treating upon the subject in any work on agriculture, in California, I will give you my experience, as by so doing, I may save the inexperienced, about to commence the business, some expense, a great deal of trouble, hard work and anxiety of mind. If I can do this, I shall consider my time well and usefully spent.

In purchasing tule land, for the purpose of raising hogs upon it, the very lowest land you can find is the best; it should be where the tule grows rank, and where it is too low for grass, and covered, the greater part of the year, with from two to six inches of water. In situations of this kind, the ground is soft and easily rooted up by the hogs, if they are not under four months old; under that age, they are too



small and weak to tear the roots asunder, but they can follow the older ones and pick up what they leave. I have some good working sows that have raised as many as eight pigs at a time in these tules, and entirely escaped from the mink and raccoon. At the age of six months, they should be taken from the sow, for fear they might weaken her too much, rendering her unable to procure food sufficient for herself and young, for when this happens, the lives of the whole are in danger.

But, even in the most favored tule ranges, you may expect but little increase in your swine herd. The life of the hog in the tules, is but a precarious one at best; for he has got to root, from morn to night, to make a living. The king of Tahiti, when visiting England, declared that the only real gentleman of leisure that he had seen, was the hog; that he was better fed, and had less to do than anybody else he had seen. The condition of the tule hog will hardly compare with the hog of John Bull. In our best cattle ranges, where the tule is tough and strong, the hog will die with hunger and hard work; for in these situations, the tule is too strong to root up.

Too much dampness, or water, affects the hog as it does the human; he will work or fight hard all day for a living, up to his belly in water and mud, and feel none the worse for it; but let him lie down on a wet bed at night, and he soon loses his energy, gets lousy, and finally dies. Lousiness can be prevented, to some extent, by rubbing them once a week with a mixture of two parts grease to one of turpentine; but to rub them with it, they must first be caught. I would not catch them with a dog, as is the too common method, but catch them with my hands, and without hurting them; and I include among those to be caught, such as never saw the face of a human being. If knowledge or mind does not convey the idea of power, or is power itself, morally as well as physically, it is worthless to us. In wild hog catching, it gives us this power. To catch the wild hog, I have a few pet hogs; that is, hogs fed from the refuse of the kitchen, as decoys; when I want to go to the hunt, I soak a little barley in warm water, so as to make it smell. I then put a little of this barley in a bag, and take the tame hogs along with me, by giving them a handful of the barley, now and then, to invite them after me.

When I get to the situation where the wild hogs are—and I judge of this by seeing where their fresh tracks are—I wait for the tame hogs to come up and smell the barley, but don't give them any of it; this causes them to make a great noise, [a mighty squealing, we suppose.—ED.] and looking round and listening, I shortly hear a rustling amongst the tules. The wild hogs hear the tame ones, and smell the barley. They now make two or three circles about me, coming in nearer every time they come round. I now scatter the barley, and in come the wild hogs, mixing up with the tame ones, and all eating together. I then advance towards the wild hog I wish to catch, moving gently, and when I get within about three feet of the animal, I raise my hand and arm in the air and curve it down upon him, touching only the top part of the hair with my fingers; I then gradually approach the skin and commence scratching him. On discovering what you are doing, he may run off; but, finding that you intend him no harm, he will come back again to a certainty, and you commence with him again. The hog is now in your power, and by returning home

with your tame band, the wild hog is sure to follow, or you can catch him by the hind leg. The hog is a great stickler for fair dealing, so when you call them, you must be sure and give them something to eat; for if you call them twice without feeding them, you loose all control over them; you may call, but they will not come in, but keep away and turn wild if the range is suitable.

The best plan, however, to raise hogs on the tules, or in the tule country, and grow rich by the operation, is to raise feed for them, by cultivating a piece of tule land, raising pumpkins and sugar beets. The beet is the best for milk animals, including the hog when she is suckling her young; but the fattening quality is, I believe, altogether on the side of the pumpkin; but to make perfect hog feed, you require both, and you can raise both to perfection, and in about equal quantities, upon good tule land. South of Steamboat Slough, beets can be planted any month in the year and do well. I believe the plan of raising feed for hogs altogether better than to expect them to gain their entire living from the tules. The time required to look after them would nearly raise their feed, to say nothing of the increase, which would be far greater from well fed animals than from wild; for really, but little increase can be expected from hogs running in, and deriving their entire sustenance from their labor among the tules.

THOMAS CUBBINS.

### INVENTION AND CIVILIZATION.

**T**HE progress of civilisation is indicated by **MECHANICAL INVENTIONS**. We set the world ahead by mechanical devices, and just in proportion as we develop the resources of nature by inventions, do we leave the world the better for having lived in it. It is our privilege to convert the forces of nature and all her various materials, such as iron, copper, lead, silver, gold, wood, water, wind, air, light, heat, the tides, soils, etc., etc., to the service of mankind; and, by mechanical inventions, we are now enabled to navigate oceans, lakes and rivers, to travel by rail, at the rate of a mile a minute! and to convey and receive intelligence by telegraph from one end of the continent to the other. All this results from useful, mechanical inventions. "That man who makes two blades of grass grow where but one grew before, is a benefactor;" and he who invents an instrument which will do the work of human hands, is also a benefactor. The planing-machine performs the labor of scores of men; the sewing-machine does the work of many thousands, and rapidly earns princely fortunes for the manufacturers; while a single invention—a small part of this machine—the *lock stitch* alone, pays the inventor two hundred thousand dollars a year! The cotton gin, the invention of a young New Haven lawyer, has given to the world, in the new facilities for cleaning cotton, many millions of dollars within the last fifty years. Nor is the field for successful inventions exhausted. It has but just been touched—each new discovery renders another necessary. There are more than twenty patented inventions used in the manufacture of a single Colt's revolver; and perhaps even more than that number in the manufacture of a single locomotive.

Greater riches and higher honors are in store for inventors than for those who ornament the "learned professions." The world is set ahead by the inventor. Reader, have you any original ideas? If so, why not bring them out? It is our privilege to use all the elements of nature for our servants; we make the sun paint our pictures, the wind propel our ships, electricity to carry our messages with the rapidity of thought. The wind sweeps over every man's farm, at the rate of a million horsepower every day! may it not also be used? And then look at the immense water-power—why not use all this? Where are those highway steam carriages? (we have excellent portable steam engines, for farmers' use) the steam plow? The steam reaper, mower, and thresher offer a field for both honors and profits; but we only suggest; others, who may be blessed with the faculties for invention, may put them into practice and receive the emoluments. We, of the nineteenth century, in the year 1860, are a long way ahead of any preceding age in the use of labor-saving and civilizing and mechanical inventions.—*Life Illustrated*.

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#### IMPROVEMENTS—ERICSON'S ENGINE.

**A**MONG the numerous improvements lately made in our city, we noticed to-day the new and extensive carriage manufactory of H. Casebolt & Co., on Market street, near Montgomery. After inspecting the different departments of the manufactory, where the entire wood and iron work and trimming of every description of vehicle, from the common wagon and omnibus to the most elegant and costly carriage are made, we extended our visit to the basement story to see the Ericson Caloric Engine, recently imported by Ogden & Wilson, who are agents for the sale of these engines in California. These gentlemen have two caloric engines at Casebolt's establishment, which were put up and set to work by Mr. Louis Blanding, of this city, who, by long and diligent and practical experience, has made himself perfectly familiar with their working. Mr Blanding has set up and worked several of these engines in different parts of the state, and will cheerfully explain their capacity and principle to those who feel an interest in this new and great motive power as now applied. The small engine has a cylinder twelve inches in diameter, six-inch stroke, furnace only six by eight inches; it has capacity to pump a one and one-fourth-inch stream of water sixty feet high, drawing it twenty feet, and will throw from seven hundred to eight hundred gallons per hour through this distance, and it can be applied to any kind of work requiring equal power.

The large engine has a cylinder of twelve inches in diameter, eleven-inch stroke, furnace, fourteen by fifteen inches—entire weight, thirty-four hundred pounds. It will give from four to six horse power at a cost of thirty-five cents per day, using wood or coal as fuel; and as no water is used, and no engineer after the engine is once put in order, the above is the entire cost of working it. The large engine is now working daily at Casebolt's, in driving circular saws and other machinery used in carriage-making, and we should suggest to all who are so disposed, to spend an hour in witnessing the practical results of this wonder of the age.—*Eve. Telegram*.



# Editor's Repository.

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**ERRATUM.**—Second line from bottom, page 409, "Stockton" should read "Sacramento."

We have received a letter, *without signature*, from Big Oak Flat, ordering the CULTURIST. To whom shall we send it?

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**DISTRICT AGRICULTURAL SOCIETIES.**—It would seem from the recent movements of a few of our agriculturists, who were the leading spirits in the early organization of the State Agricultural Society, that it was the intention of its framers and supporters, that the society should itinerate, or annually migrate from one portion of the state to another in the holding of its annual fairs. The agriculturists of different sections of the state have shown their devotion to the interests and well-being of the society, by their continued membership, from year to year, and payment of annual dues. As there are members residing in remote parts of the state, or remote from the center, as at Los Angeles, Humboldt and Siskiyou; as it was the original intention that the society's fair should itinerate, they claim that, as it is evidently tending towards permanent location at some point, as at Sacramento or San Francisco, where the masses that attend the annual fairs can find sufficient, comfortable accommodation, that therefore, these remote districts of the state are debarred the advantages of a participancy in their turn, of the benefits and advantages that result to those cities in which the fair is held.

They claim, therefore, that the state fair has ceased to meet the wants of the agriculturists of the state, and propose to organize district societies, the districts to be composed of contiguous counties conveniently situated for holding each their own annual district fair. It is proposed to have the several county societies, auxiliary to the district societies, and the district societies auxiliary to a state society. A northern district society was organized last year, and held its first fair in Marysville; it was a success, and the organization promises well for the future. A movement was made last month, by the agriculturists of the counties bordering on, and contiguous to San Francisco bay, for the formation of a district agricultural society, embracing their respective counties. A convention was held on the twenty-fourth of February, the proceedings of which we annex from the *Alta California*:

The agricultural convention met this morning in the Twelfth District Court-room. Regularly elected delegates were present from Sonoma, Contra Costa, Alameda, Santa Clara, and San Francisco counties—about forty members in all. Judge Daniels, of Santa Clara, was elected President, and Frank Fargo, of Alameda, Secretary. A committee on credentials was appointed, and the credentials of the delegates were examined and found correct. The following persons were recognized as entitled to seats in the convention:

*Alameda.*—A. H. Myers, D. E. Hough, William P. Toler, Dr. H. Gibbons, A. Luelling.

*Contra Costa.*—George P. Loucks, H. H. Fassett, C. T. Cutler, N. Jones, W. Bradford.

*Sonoma Horticultural Society.*—Geo. H. Butler, John Swett, Wm. Boggs, Mr. Swift.

*Sonoma Agricultural and Mechanical Society.*—R. Matheson, William Hull, William Ordway, J. Q. Shirley, H. L. Weston, N. P. Stafford.

*Santa Clara.*—William Daniels, Cary Peebles, J. F. Kennedy, Thomas Campbell, Charles G. Thomas, L. Archer, Wm. Reynolds.

*San Mateo.*—John Cumming.

*Monterey.*—Mr. Terrill.

*Santa Cruz.*—Wm. N. Slocum.

*San Francisco.*—Wm. Green, Michael Hayes, John J. Haley, J. L. Burtis, John Center, R. B. Woodward, Edward Raymond, W. C. Walker, Wm. O'Donnell.

Subsequently Mr. Morgan, of Marin, Mr. C. A. Ely, of Ohio, and J. S. Silver, of Pennsylvania, were invited to take seats, and then all officers of horticultural and agricultural societies, and of the Mechanics' Institute, of San Francisco, present, were invited to take a seat in the convention and a voice in the proceedings.

The following permanent officers were elected :

*President.*—William Daniels, of Santa Clara.

*Vice Presidents.*—R. Matheson, of Sonoma, G. P. Loucks, of Contra Costa, and J. L. Burtis, of San Francisco.

*Secretary.*—Frank F. Fargo, of Alameda.

Several letters were read, including the following, from the President of the Napa County Agricultural Society :

*To the Chairman of the Agricultural Convention, San Francisco :*

SIR:—It being inconvenient to attend the convention personally, in response to an invitation received, I would say that, under the circumstances in which many of the members of the former State Agricultural Society find themselves placed, I consider it very desirable a new association should be formed, by which a more equal justice will be done all parts of the state, local interest in agricultural fairs encouraged, and the state society itself placed on a basis which will render it independent of sectional interests in its management, and, while affording a greater freedom to the exhibiter, be less cumbrous and uncertain in its action.

The old organization called for too great a tax of time and labor from its officers, whose only reward was the consciousness of advancing the agricultural interests of the state ; while those who reaped the entire pecuniary interests of the exhibition were not called upon either for labor or for its support.

The absolute necessity which existed of exacting the fee of membership from all exhibitors, acted as a bar against those of limited means, and prejudicial to the very interest the society was instituted to advance. A society fostered by the state's bounty, should, in my view, be free to all exhibitors of the state's products. On the other hand, the ease with which membership could be procured, rendered the society at all times liable to be controlled by interested parties, whose views might be those of immediate pecuniary interest, instead of the development of the state's agricultural resources.

Again, the exhibitions were altogether too frequent, and extended over so much of time, as to leave little encouragement to the county fairs, the labor and effort of those most interested in such associations being too severely taxed to be able to devote the necessary attention to secure the success of both local and state exhibitions in the same season. Few but the initiated, know how to appreciate the valuable time and labor which have been bestowed, or the genuine public spirit displayed by many of the officers of the old institution ; and where time is so valuable, care should be taken in a new organization to make that tax as light as possible.

My idea is, district societies should be formed, holding exhibitions and sale fairs wherever the counties are not strong enough to organize their own societies, which, when it can be done, I believe to be the most valuable effort in this direction. I think once in three years sufficient for a state exhibition, which should be held in that city offering the best facilities, in all cases free of expense to the society ; the labor of preparation to be borne by that community receiving the immediate pecuniary benefit. In the constitution of the state society, whatever limit there may be to membership, I think the *entire control and management* should be left to a board selected by the

delegates from the county societies, the presiding officers of which to be *ex officio* members of the state society.

I think the agricultural interest thus organized and represented, with an able secretary, earnest, zealous and permanent in his office, fully conversant with the agricultural business of the state, would be at all times in harmony with local interest, be in working condition, without too great tax of time and labor from its active members, and be successful in commanding the entire confidence and support of the productive interest of the state. Yours respectfully, J. W. OSBORN.

The business committee made the following report :

Your committee, consisting of one member from each County Agricultural Society, and one from the Mechanics' Institute, of San Francisco, and the State and Sonoma County Horticultural Societies, was organized by the election of John Cumming, Chairman, and H. H. Fassett, Secretary, and would respectfully submit the following report, to wit :

*Whereas*, in consequence of the action of the State Agricultural Society, said organization has ceased to meet the wants and wishes of the agriculturists of the state, therefore we recommend a division of the state into districts, to which the county societies therein may become auxiliary societies, with a view to the organization of a state society on the part of the district societies, to which they may become auxiliary. The following, in the opinion of this convention—subject, of course, to such modification as the Legislature in their wisdom shall see fit to make—would be a proper division of the state.

*The Northern District*, as already embracing all the counties north of Sacramento.

*Sacramento District*, embracing Sacramento, Yolo, Placer, El Dorado, and Amador.

*San Joaquin District*, embracing San Joaquin, Calaveras, Tuolumne, Stanislaus, Mariposa, Fresno, Buena Vista, Merced, and Tulare.

*San Francisco Bay District*, embracing San Francisco, San Mateo, Alameda, Santa Clara, Santa Cruz, Monterey, and Contra Costa.

*Sonoma and Napa District*, embracing Sonoma, Napa, Solano, Marin, and Mendocino.

*Humboldt District*, embracing Humboldt, Trinity, Siskiyou, Del Norte, and Klamath.

*Los Angeles District*, embracing Los Angeles, San Bernardino, San Diego, and San Luis Obispo.

Your committee, therefore, request the Legislature of the state to repeal the law appropriating \$5,000 annually to the present state society, and that a just and liberal appropriation be made to such district societies as are now, or may be organized, and do hold district fairs during the year 1860; and would respectfully submit the same to your consideration.

JOHN CUMMING, *Chairman of Committee.*

This report, after some discussion, was adopted entire.

The convention adjourned to meet at the call of the business committee.

*San Francisco District Agricultural Society.*—After the adjournment of the agricultural convention, the delegates representing the counties belonging to the San Francisco district met for the purpose of organizing a district association. A committee was appointed to draft a constitution. A draft of a constitution was presented, and after some consideration, was referred to a special committee, composed of A. H. Myers, of Alameda; Wm. Daniels, of Santa Clara; John Center, of San Francisco; D. R. Ashley, of Monterey, and Wm. Blackburn, of Santa Cruz, who are called upon to make a report at an adjourned meeting, called to assembled at San Jose, on the 21st of March. The meeting adjourned.

**CRANBERRIES.**—We have ordered a lot of Highland or Bell cranberry plants, to fill, in part, an order of one of our subscribers remote from the coast; also an order from an amateur grower of fine fruits in Alameda, for the same. We have also received a letter of inquiry from "Illinois," resident of Columbia, desiring to know if cranberry plants can be procured nearer than New England. They can be procured in Oregon, but of a variety quite inferior to the Eastern varieties, and hardly worthy of cultivation if the better can be procured.

**OUR FRONTISPIECE.**—We present this month a substitute for what we should have given, had we not been disappointed by our artist. It consists of a section of brood comb, containing a queen bee cell, etc.—see next page.

The *solid steel-tooth cultivator* will commend itself to the attention of agriculturists everywhere; it is an invaluable implement of its kind, and without a superior, either as regards mechanical construction and workmanship, or its effectiveness as a pulverizer of the soil. See advertisement.

**A CALIFORNIA WORK ON BEES.**—In our last number we gave notice of a forthcoming work on bees and their culture, by J. S. Harbison, of Sacramento. Owing to imperfections in the engravings intended for the work, and a determination to secure better, its publication will be necessarily delayed till some time in April. In the meantime, we have been permitted to make such extracts from advance sheets of the work as will give our readers something of an idea of the manner in which the author handles his subject. Of course, we are without the plates and illustrations referred to in our extracts; but we believe enough can be gathered from the written description, to satisfy any one of the real merit of the work, and its value to the novice in California bee culture.

**Formation of Colonies.**—The proper time to commence colonizing is from one to two weeks earlier than natural swarms leave the parent hive. This depends on the season, and varies in different localities. The nearest approximation to the time, would be from eight to ten weeks from the time that they commence to carry in pollen from the willows and other sources of early pasturage. In Sacramento and vicinity, they commence to carry in pollen about the first of February; and the first swarms, for the past three years, have departed from the first to the fifteenth of April; but most of the swarms may be expected during the latter part of this month, and through May.

**Primary Divides.**—One primary divide with queen, nursery formed, may be depended on to supply from three to eight embryo queens—sometimes a greater number is raised—five may be a fair average number.

**Time to Commence.**—Suppose the owner of five hives of bees finds, on the 22d day of March, that his bees are becoming crowded in the hives, and from the favorableness of the season, believes they would swarm early in the following month; then let him proceed to make one primary divide and form a queen nursery in the queenless division. For this purpose, choose one of the hives that is strong and likely to have the most brood. There should be at least five sheets of comb, containing brood in the hive, selected for this purpose. Commence by opening the hive; remove the chamber floor L, and glass frame K; then choose the side of the hive having the straightest combs; now raise the front tenons of four frames out of the grooves in the front board. If they are glued fast with propolis, take a chisel and pry them loose; then move three of them further from the side one to give space for it to be removed first.

**Position.**—Let the operator stand with the left side close to the hive, and with the left hand take hold of the corner of the frame, resting against the front board, and with the right hand the outer corner; now raise the left hand, carrying the frame upwards and outwards, moving on the fulcrum until free from its rest in the sill. The movements should be slow and gentle; now place this frame in an empty hive ready at hand; then take hold of the second frame in the same manner as before directed, and turn the comb with the left hand sufficiently to keep it from rubbing the bees and adjacent comb; then, by the upward and outward movement, it is freed from its rest, and without jar, the same as the first one, this frame is to be examined for the queen, and is also placed in the empty hive with the previous one; each of the other frames are removed in the same manner, and part are placed in the hive with the two previous ones, the others to be stepped over into the vacancies first formed.

**Find the Queen.**—A sharp watch has been kept for the queen, and, if found, place her in the new hive; but if she has not been found by this time, spread a sheet on the ground, and take the combs, one by one, and with a quick motion, shake the bees on the sheet; in handling, combs, at all times, must be kept with one edge upright, to prevent breaking. The queen will most likely be found in the cluster on the sheet; sometimes she crowds off the combs, and is found in the inside of the

hive. When found, place her in the new hive; then examine the combs, and choose one-half of the most mature brood combs, and place them in the hive with the queen. One sheet of comb containing stores, should be placed first at the side, and the brood placed compactly adjoining; the empty frames are added, and the hive is ready to receive its share of bees.

For want of room, we are compelled to omit further extracts this month, except a few words descriptive of a portion of our frontispiece. The engraving illustrates a section of brood comb taken from a queen nursery, for the supply of a queen to a new colony, and a single queen cell, *L*; whilst *m* is the rudiment of a cell which the bees continue to build at, until the emerging of the supplied embryo queen.

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**SAN FRANCISCO MEDICAL PRESS.**—This is the title of a new Medical Journal, established in San Francisco, by Prof. E. S. Cooper. The merits of the Press, as a medical production, we are not perhaps altogether competent to judge of; but the forcible suggestions and common sense views it takes of the influence of medical men, associated in bodies harmoniously acting for advancing the interests and reputation of the profession, are such as strike with peculiar force every practical man. It contains a large number of original communications from medical men of reputation in San Francisco, showing that the profession of this city is disposed to further its interests by their literary aid. The enthusiasm and love of the profession, of which the editor is so distinguished a member, together with the friendly spirit it shows towards all medical men, must, we think, render it a favorite with the profession of the state. There are few works published in which liberality, self-sacrifice, and a determination to labor unceasingly for deserved reputation and the advancement of a noble cause are more apparent, than in the "*San Francisco Medical Press*."

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**CORRESPONDENTS.**—We respectfully invite our friends to give us their experience for the general good. Almost every farmer has knowledge of some facts which would be valuable to all his brother agriculturists. It will always give to every true man a heartfelt satisfaction to do something to advance the general good. It is our business, and our greatest pleasure, to be the means of thus circulating interchanges of useful experiences among our producers. Let no man say, "Oh! I can't write." Please to send us your *facts*, your deductions, and your counsel—in your own plain way—and if any mere adornment of words is needed, we will supply it. But let us say to you, that the most acceptable pieces often come from persons who think they cannot write. If you can talk, you can write out your talk; and this colloquial style always reads best in a periodical journal. No man knows that he can't write: let him try and he will find, perhaps, to his amazement, that in his unstudied phrase, the homespun truths strike us with a charm and a force that win us, and command our deepest respect.

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**HYACINTHS** and other bulbous flowers may be arranged with very pretty effect thus, viz: Place the bulb in a saucer or in any shallow vessel; half fill the vacant space around it with pebbles and shells, sufficient to steady the plant; then fill up with water. This is much prettier than the glass bottles usually employed. We are indebted to Chinadom for the suggestion.

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**SANDY LOAM FOR GRASS.**—We have received a communication from one of our subscribers at Healdsburg, Russian River, desiring information as to the adaptedness of sandy loam for the production of grass. In all temperate countries, where rain falls at short intervals during the summer months, a sandy loam, if possessed of tolerable fertility, is considered one of the best of all soils for the maturation of general farm crops; and yet, there may be circumstances under which it is illy adapted to the production of the grasses, if we except the clover or tap-rooted family. Wherever there is sufficient fertility and moisture in the soil or subsoil for the support of vegetation, there alfalfa and the clovers can be grown; of course, we except countries that are too frosty. Quite recently, the introduction, or rather increase of the culture of the clovers in the Southern states, is



working a revolution greatly to the advantage of their agriculture ; and yet, the finer bladed grasses do not succeed well there.

In most countries, ranging from temperate to torrid, the majority of the grasses are annual, or at best, biennial ; and this fact holds good as regards most of the natural grasses of California. Whether any of the introduced grasses will prove greatly superior to the native, has not as yet been satisfactorily demonstrated. Certain it is, that neither the native or introduced grasses, will ever yield a continually green herbage from spring to autumn frosts, under a California sunshine, upon a sandy loam, without a natural or artificial irrigation. Under the head of naturally irrigated lands, we would include all such as are watered by the natural flow of springs and rivulets, and all lands so near the level of our bays and rivers as to be kept constantly sufficiently moist by the absorption of their waters. Upon any other than such lands we can never hope, unaided by artificial irrigation, to succeed in the growing of other than the merest annuals—the clovers, being tap-rooted, are exceptions. Should any of our readers have succeeded in the growth of grasses, other than clover or alfalfa, upon unirrigated grounds, if they will give us the result of their practice, they will confer a benefit to the agriculture of California.

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**HOP CULTURE.**—Numerous inquiries are pouring in upon us, relative to hop-culture. One correspondent in Diamond Springs, another in Auburn, three in Marysville, one in Potter's Valley, Mendocino county, and one in Alamo, Contra Costa county, are all asking us to tell them what we know about hop culture in California. Now, gentlemen, had you but omitted the words, "in California," we could have done something for you, based upon our own experience ; but, as it is, we must rely upon what information we have been able to obtain from those who are cultivators of the hop here, and our former Eastern experience.

First, as to soil : a rich, sandy loam, rather moist than dry, is to be preferred ; but any good garden ground will grow hops. Prepare the ground as for corn or potatoes, making it mellow and working it deep ; then lay off your hills—in accordance with Eastern practice—in rows eight feet apart and six feet apart in the rows. In our extremely dry and sunny climate, it may answer to plant closer than this—say six feet each way—but closer than this cannot be recommended, particularly upon our fertile river alluviums ; on some of our drier mountain and hill lands, where the growth would not be as luxuriant as on the moister low lands, five to six feet might be admissible. The rule must be this : Give them that distance that will admit of a full and free circulation of air among the vines. Where strong winds prevail, they can be planted closer than where there is but little circulation.

Plant three cuttings—some would say four—in each hill, six inches apart ; cover the same depth as potatoes. As soon as the vines begin to make their appearance, set the poles ; this matter should not be neglected, for the hop is not as apt to take kindly to the pole, unless it has an opportunity to do it at the commencement of its growth. It may be necessary at first, to assist some of the vines in taking their first hold of the poles. This is done by inclining the vines in the direction of the pole and pressing a little dirt with the foot gently on the outside, at the surface of the ground. As you face the pole, always carry the vine to the left side of the pole, as it never runs round but one way, and that with the sun—as some say—or from the east to the south and west side, and so around ; and a singular fact in regard to this is, that, if prevented from going the way nature has suggested it should, it is actually retarded in its growth, and, if persisted in, will cause it to throw out new vines from the bottom, as if in hopes they may be more fortunate. The poles should be from twelve to sixteen feet in length—never more than sixteen feet. It is well to have two poles to each hill, though it is not generally practiced ; but never should there be more than three vines to one pole, and two is better than three. Select the strongest and best shoots and cut the rest away. Keep the ground free from weeds, and occasionally help any of the leaders as they are running upward, back to the poles, in case high winds or other cause should displace them ; tying loosely with soft worsted yarn is sufficient. Their after management will be discussed in future numbers, in good time. It is the practice of many to plant the spaces between the hills with potatoes or other vegetables ; the practice is admissible the first year, but it should not be done afterwards.

**THE AMERICAN STOCK JOURNAL.**—We receive this admirably conducted journal regularly. It is one among the most desirable and welcome of our Atlantic exchanges. It is mainly devoted to the interests of the breeders of farm stock, and to such, has become, from its usefulness, an indispensable monthly visitor. The great success that has attended its publication thus far, has induced the proprietor to make several important improvements in the volume for 1860 over the previous volume. These improvements are not merely contemplated, but they are made, and, from the known character of the editor as well as the proprietor, they will be continued. We would urge upon the attention of California stock-growers, the importance to them of possessing this leading and unequalled stock book. It is published monthly. C. M. Saxton, Barker & Co., Agents, No. 25 Park Row, New York.

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**THE BEST MARKET STRAWBERRY.**—We are inquired of by a correspondent in Columbia, our opinion of the best market strawberry for California. So far as the experience of all the large growers of strawberries, in the vicinity of San Francisco or the bay of that name, goes to establish the point, we believe there is none other equal to the British Queen. For general productiveness, size and quality, we believe it is without a rival. Its flavor, to our taste, is not equal to Peabody's seedling, Ajax, Ruby or Jenny Lind; nor are we sure it will much excel some of these varieties in productiveness, particularly away from the peculiar climate of San Francisco. Experiment can only prove which are the best varieties for mountain localities.

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**BITTER BUTTER.**—EDITOR CULTURIST.—The cause of bitterness in spring butter is the weeds. In our first inhabitancy of California, grass was more abundant and weeds less. Our pastures are running out, from too close and everlasting cropping. We give them no chance to recuperate; we so starve our cattle, that every grain of the oats and burr of clover is licked up; we turn our stock upon the pastures when the first rains come; and we keep them shaving down every blade of green, showing nature no chance. This treatment is destructive to the grass, but the weeds don't mind it; they thrive in despite of it; and now, as blades of grass are killed off, bunches of weeds take their places, and, year by year, the proportion of weeds is increased—till, by and by, it will be all weeds, and our spring butter will be all bitterness. There is a remedy by which the taste of weeds may be remedied in great part, and, in many cases, effectually; but it will not make the butter wholesome. The taste imparted to milk by turnips and cabbages, may be removed by infusing a small quantity of cold water into the milk when it is in the pan; but when this is not effectual, put into the churn half a teaspoonful of saltpetre for, say eight or ten pounds of butter, and in that proportion for larger quantities, and you will deterge the butter of whatever bitterness it owes to weedy pasturage. While we give this medicinal perscription to remedy an evil, we would impress it upon producers that it is merely a means of concealing from consumers the unwholesomeness of the article. They owe it to themselves and to the public to strike at the root of the evil, and this is only to be accomplished by cultivating out the weeds and seeding in the grass. Cheesy butter is not what we call bitter. The peculiar flavor of cheesy butter comes from the staleness of cream kept too long. It is due to a process of decomposition, and it is very deleterious.

ANTHRAX.

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**MOUNTAIN APPLES WILL KEEP.**—To have been fully satisfied on this point, the doubting should have seen a few beautiful specimens of the genuine Rhode Island Greening, raised by J. Bryan, Jr., of Diamond Springs, and in good eating, as well as keeping condition, as late as the twelfth of February. When we shall have found the proper altitude, giving us a climate corresponding with that of Oregon, then may we hope to see the same varieties as good keepers as when grown in Oregon. So far, we believe, every attempt to produce fruit among our foot-hills, at altitudes not exceeding two thousand, five hundred feet, has been attended with complete success; and the future can only reveal, by its yield of delicious fruits, how perfectly the soil and climate of our mountain plateaus are adapted to their production.

**CALIFORNIA INVENTION — VALUABLE AGRICULTURAL IMPLEMENT.**—Mr. S. H. Rounds has invented and patented an agricultural implement, which he calls a "Seed-Sower and Turtle-Drag," calculated to perform at one motion, the operation of sowing grain or any kind of seed, harrowing it in, breaking the lumps, and rolling or leveling the land. As a California invention, it deserves to be placed before our farmers, who are recommended to give it a thorough examination for the economy and labor-saving principles which it involves. The machine runs on four wheels, of which the fore are of ordinary wagon size, and the hind much smaller. It is drawn by two horses. The seed-sower is elevated about four feet above the ground, in the front part of the machine, and consists of a box, or hopper extending across the width, and running down like an inverted cone. This hopper will contain about six bushels of grain. At the lower part is a roll or barrel, the outside of which is exposed underneath, and is perforated with between two and three hundred holes. The motion of the machine, as it passes over the field, causes this barrel to revolve, and the grain falls, from the holes, upon the ground. In fourteen feet of headway, this barrel makes one-third of a revolution. The amount of grain to be emitted, however, can be graduated at the operation of the driver—from one quart to two bushels to the acre. This part of the invention we saw work with the most perfect success. The crumbling, harrowing and rolling part, is performed by a single process of the most simple description. This consists of a barrel or shaft, forming the hind part of the machine, and attached to it by a stout framework. With the progress of the machine, the roller revolves. It is provided with eleven transverse rows of seven-inch teeth—about the size of those of an ordinary harrow—with ten teeth to a row. These are so constructed, by a simple piece of machinery inside the barrel, that they protrude their whole length as the barrel, in its revolution, brings them toward the ground, and the revolution continuing, they draw themselves in again, when they have reached a downward position, and accomplished their purpose of breaking the lumps and harrowing the ground. The remainder of the revolution of the barrel presents, therefore, a smooth surface to the ground, and acts as a roller. Thus, in the passage of the machine over the field, this in-and-out motion, (like that of the head of a turtle—whence the name) is continually going on, and the harrowing and rolling following immediately after the seed-sowing, there is, necessarily, but one operation between plowing and reaping, as this machine performs at a single motion all the intermediate processes. This constant motion also keeps the teeth clear of all obstructions, such as grass, roots, etc., which are apt to clog them. The machine goes sixty-seven feet ahead for the turtle-drag, or barrel to revolve once. An improvement might perhaps be made in substituting one for the present two wheels, which have so little play (the axletree being stationary) that a large circuit is required to turn in. A single wheel would enable the machine to be turned easily, and in a comparatively narrow space—a manifest advantage in a narrow field. We saw the machine at work yesterday, near the Union race-track, where a large field of grain is being sown. It answered the required purpose admirably, leaving after it a fine, close soil, as if it had been nicely rolled. Its motion is about as fast as an ordinary harrow is driven, and takes about as wide a space. It is labor-saving, economical and strong. Mr. Rounds is an old Californian, and has been long enough in the grain-growing districts of Chile, to fully understand what was wanted. It will soon be on exhibition at the patent depot of Messrs. Wethered & Tiffany, on Market street, near Montgomery.—*Alta California*.

We were on the ground to examine the work done by this seed-sower and harrower, and we pronounce it a valuable and useful invention to the grain-grower. We shall give a further description, and a finely executed, engraved illustration of the invention in our next number.

**CHUFAS OR EARTH ALMONDS.**—So great is the demand for this newly introduced nut, for the purposes of feeding and fattening swine and poultry, that even in the Atlantic states, it is impossible for seedsmen to fill their orders. A California order has been for months in the hands of Thorburn, which he is unable to fill, and as spring approaches the demand is every day increasing. We simply announce the fact, that a limited quantity can now be procured by sending to us; they will be sold at a rate which seems truly a great price to pay—three dollars a pound; but to those who are sufficiently desirous of getting seed of an excellent quality to commence with, we can assure them that such as we offer are perfect seed. See also, advertisement of C. L. Kellogg & Co., 111 Sansome street; and S. W. Moore, 110 California street, San Francisco.



**METEOROLOGICAL TABLE,**

For Sacramento, California; being an abstract of Observations made during the month ending January 30th, 1860; Lat. 38°, 34', 41'', N.; Long. 121°, 27', 44'', W. Height of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its height above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By THOS. M. LOGAN, M. D.

**Thermometrograph.**

	Dec.		Dec.
Highest Reading by day on the 4th .....	53.00	Mean of all Highest Readings by day .....	50.87
Lowest Reading by night on the 28th .....	32.00	Mean of all lowest readings by night .....	37.83
Range of Temperature during month .....	24.00	Mean daily range of Temperature during mo. ....	13.06

REMARKS.—The continuous cold, damp and foggy weather which characterized the early part of the present winter, has at last given place to a more genial state, and the past month has proved exceptional, both as regards temperature and the number of clear days. January is generally our coldest month; but, although the nights have been exceedingly cold and frosty, still the figures in the table show how much above the average the thermometer has ranged, and how many more clear, sunny days than usual have prevailed. In fact, considerable verdure is already to be seen in the surrounding plains, with other indications of an early spring. A prevalence of northwesterly winds, however, would soon give a check to such precocious vegetation. The earliest spring we find on our record was 1855. In that year the butter-cup was in profuse blossom on the first of February, and on the twentieth the peach tree was in flower. The prospect of abundant rains, with which the present season opened, is not as favorable as it was at first regarded; as, however, the rains commenced earlier than usual, we may regard the late dry weather as constituting the period of interregnum, which generally prevails in February, between the early and the latter rains. The highest point to which the river has reached was eleven feet above zero on the eighth instant.





# T H E **CALIFORNIA CULTURIST.**

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**APRIL, 1860.**

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## **DETERIORATION OF BLOODED STOCK.**

**W**ITHIN the last two years, a very great expense has been incurred by many of the best stock-growers in California, in the introduction of high blooded animals of the choicest breeds, including horses, cattle and sheep. These importations have generally been well selected, and success has, in almost every instance, attended their transportation hither; so that now there is no want of genuine blood from which to breed direct full bloods, or cross upon the native herds. It is the opinion of some of our most observant and careful breeders, that no country in the world presents a better field for the breeding of high blooded animals than California; and they base their belief on the general supposition that a mild and equitable climate, free from the extremes of heat or cold, and particularly the latter, cannot but prove highly favorable to the fullest development of animal life in its most perfect forms. It is under this belief that many have imported full blooded animals, of both sexes, purposely to test the capacities of our climate and country for the transmission in full, if not even allowing of an improvement in the blood of the animal. By blood, we simply mean, in this instance, an improvement of the animal form, or a more perfectly developed physical organization.

There are others who believe that greater advantages are to result from judicious crossings of high blooded animals upon our native herds; as likely to produce a stock better adapted to the peculiarities of the climate and food of California, than can ever be obtained by breeding only full bloods. It is undoubtedly the long habitat of a particular district of country by any description of animals and their progeny, that best fits them for its occupancy. It is this that has produced the numerous fine, but distinct breeds of English cattle, and each, to a very great degree, adapted to their own particular district, by certain conditions of climate, soil and food. But it remains to



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## RAISING COLTS.

A PENNSYLVANIA farmer, in the *American Stock Journal*, discourses in this wise on the subject of raising colts: The proper manner of breeding and raising our horses, is fast becoming a subject of national inquiry and importance. Its successful accomplishment is attended with considerable trouble and expense; but when properly attended to, and conducted on scientific principles, it becomes a source of pleasure and profit. Those who may be led by inclination, or compelled by necessity, to resort to this occupation as a means of obtaining a livelihood, or acquiring a fortune, will alike find it a pleasing and profitable pursuit. The present high prices which good horses command, and the annually increasing demand for them, is turning the attention of thousands of our citizens to this subject. How, then, to re-produce and properly develop this most noble animal, is a question of vital importance to our country.

I am well aware that so much has already been written upon this topic, that but little that is new or original can be offered; but still there are some things which cannot be too often repeated, or too indelibly imprinted upon our minds—and among these are the *true* “principles of breeding.” Having been in the business of raising colts for a few years past, I propose in the present series of articles, to give substantially the result of my observations and experience for the consideration of practical men, and not attempt to frame a perfect theory, nor to lay down arbitrary rules for the regulation and observance of others.

The first question to be considered is this: What *kind* of an animal shall I breed? I answer this question generally, by advising the breeding of that kind *best suited to your own market*, wherever that may be. If your locality is where the demand is greatest for slow and heavy draught, breed the kind best adapted for that service; if, on the contrary, the demand is greater for horses of quick and light work, then breed that class, and so on to the end of the chapter. If all breeders were to insist on producing the same kind of animals, the market would soon be overstocked, and the business ruined. But, in this wide-spread country, *all* kinds of horses are needed, and in demand; and therefore, I would say all kinds should be bred. Let each breeder determine for himself, what class of horses is best adapted to his own particular locality and home market; and then set himself persistently at work to produce that class, and his reward will be swift and sure.

Having settled this question, we are now prepared to consider briefly the general elementary principles of breeding. The axiom that “like begets like,” may be safely set down as a grand fundamental principle of breeding. The breeder should adopt it as the golden rule of his faith and practice. This proposition, however, to be justly appreciated, must be properly understood. I have frequently been asked the question, “What do you mean by saying that like will beget like?” The answer to this question is simple and short—offspring generally inherit the qualities of their parents. Hence, if the sire and dam be *alike* in any particular form of body, or trait of character, there is a strong probability that the foal will resemble them in





reason for the difference is, to such, incomprehensible. What an immense amount of capital and labor is lost in such experiments! Science leads us in a much more certain path. It ever gives us the best security of success. The causes of failure, or causes of sterility of a soil for a few plants being known, the means of obviating it at the least expense becomes apparent. Certain plants will not grow on some soils where certain constituents are absent. Now, science reveals to us these necessary constituents, which, if absent in a soil, its sterility, and the cause of such sterility, is obvious. Such knowledge is what the farmer wants. It would often save him much capital and labor, and would enable him to employ them in the most advantageous manner. It is well known that the cereals will not flourish in a soil deficient in silica in a soluble state, in addition to the other substances requisite. Virgin soils contain vegetable matter in large proportions, and these have been found eminently adapted to the cultivation of most plants; the organic matter contained in them has naturally been recognized as the cause of fertility. At the same time, even to the most fertile soils, when the weight of the soluble parts of this vegetable matter is compared with that of the plants growing upon it, it is found but a part of their substance could have been produced through its agency, but a large portion of it is received from the atmosphere. This vegetable mold, or *humus*, plays such an important part in the phenomena of vegetation, that physiologists have been induced to ascribe the fertility of the soil to its presence. Hence, manure, supplying this ingredient, is chiefly resorted to. This humus is a product of the putrefaction and decay of vegetable matter. This receives different names, according to the *chemical* properties that it possesses, as ulmin, humic acid, coal humus, and humin. It is well known with scientific men, that the grains and grasses will not thrive, to any extent, without the presence of *humus*.

“It is impossible to stock old or exhausted lands with timothy, clover, and other grasses, without a generous coat of manure, or wood-soil; and, if stocked, it is liable to freeze out during the succeeding winter. To restore humus to the soil, green manuring, or plowing in growing crops of clover, rye, etc., is one of the most economical modes, thus gathering an increase of fertilizing matter from the atmosphere. This mode of treatment was strongly recommended by our much lamented *Buel*, and in my opinion, is one of the very best and cheapest means to apply to exhausted or worn-out soils, to bring them to a state of fertility.”

We wish it was possible to convince the California grain-grower, who annually raises his hundreds of acres of wheat and barley, and as regularly consumes his straw-piles with fire, that he is rapidly depriving his soils of the indispensable element, *humus*, and that very soon his now fertile soils will be wholly or greatly incapacitated for the production of the present, though annually decreasing yield of the cereals. Farmers may talk about a rotation or change of crops, as indispensable to a continued fertility of soils, or their ability to produce perpetually. Whilst we admit the propriety of such rotation or change, with a view of deriving the utmost benefit from bringing into play the varied constituents of the soils we cultivate, we as distinctly deny the necessity of such rotation, provided the proper care be taken



we believe, or an "axiom," that two distinct bodies cannot occupy the same space at the same time. Hence, the impossibility of water-saturated cows producing much milk, and what they do produce, for the same reason cannot contain but little of any oily substance, as cream or butter, because water and oil are known antagonistics. It is offered in apology, that a necessity exists this year for water-saturated cows, upon the same principle as that which goverened the man who found himself possessed of a large lot of spring-poor pigs; he had to soak them in water several hours every day to make them hold swill. We accept the apology; for really, we have never before seen in California, as many spring-poor cattle as now; nor do we recollect a year when so much bright, clean straw of the various cereals was destroyed, as was purposely done during last autumn, by fire, and which might easily have been made available as very good animal food.

The injury from too much handling of the milk before it reaches the city, or the consumer, arises, we are satisfied, more from a natural affinity that water has to the inside of tin milk pans, than from any quality really imparted to it by the handling process. Rinsing the cans every day in water, seems indispensable; but, if any plan or device could be discovered, by which they could be afterwards drained of their surplus water, it would be, in these days of blue milk extension, well worthy a patent.

We would now propose a method to obviate the difficulties under which the dairyman prosecutes his business of milk culturist. Instead of allowing his cows, at a season of the year when not a half bite even of the vilest innutritious weeds can be obtained, to ramble for miles daily, exposed to the cold of the winds, if not to rains, he would provide them comfortable shelter and an abundance of food, properly, yet cheaply prepared, even if it be necessary to dispose of one-half of his stock to provide for the other half, he would soon find that a larger profit would attend his operations, with a far less amount of labor. It is not too much to say that the well-fed cow will give double the milk on proper food, that two ill-conditioned and half starved ones will. It is like cultivating too much land; when one-half, properly manured and cared for, will produce a larger yield than double the quantity poorly stayed with. We wish some one of our city dairymen would procure a few tuns of the straw of wheat or barley, of the thousands of tuns annually consumed by fire within sight of the city, and a good straw-cutter, and then, by hand or horse-power, cut fine the straw, steam, boil, or, if this be thought too expensive, simply moisten it with water, and give it a coating by mixing it with the bran of wheat, in preference to anything of a more unnutritious character, with an occasional mixture of carrots or sugar beets, with all the pure water they choose to drink, and then give us the result of the trial.

We do know that this plan of feeding has been practiced upon with admirable success, even in districts where tolerable pastures were cheaply procurable, and where straw was worth double, and the milk but half the price it brings in San Francisco. Soiling, which consists of feeding green food to animals without obliging them to graze for it, is practiced in very many of the dairy establishments of the East,

in the vicinity of large towns, with unvarying success. In a climate like much we find in California, the grazing of our lands, after the middle of July, is but little else than the gathering of the dried-up herbage of the four preceding months; and, though the dried grasses may contain a little more nutriment than the straw of wheat or barley, yet the latter, with the addition of the bran of wheat, is more than equal to the dried grasses for the production of milk; whilst the lessened amount of food required in consequence of the saving of labor to the animal in collecting its own food under a broiling sun, and the additional comfort secured thereby, and the quantity of valuable manure produced and saved, more than compensates for all the additional labor or expense attendant upon this mode of feeding; and we earnestly recommend its adoption to those who have but limited ranges for pasturage.

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### ITALIAN RYE GRASS.

**E**ACH succeeding year adds its weight of evidence to the proposition, that California must produce, for the support of her annually increasing herds of horses, cattle and sheep, more forage than is now, or can be grown under the present system of pasturage and tillage, from any of the grasses or clovers as yet introduced, or indigenous to our soils. The most valuable of our grasses are almost exclusively annuals or biennials; pasturage, which prevents the annual seeding of such grasses, soon renders the soil barren, or productive only of such weeds as are not eaten by animals. The necessity will soon exist for a much larger supply of green forage in the vicinity of our cities as well as in the country, for the profitable as well as healthy subsistence of our dairy herds.

In a previous article in this number, we have called the attention of stock-feeders to the use of prepared straw as a substitute for green forage, where the latter is not obtainable; but it is now our purpose to introduce to notice, and urge upon the attention of all interested, the peculiar merits said to attach to the Italian rye grass, under almost all conditions of soil and climate, by presenting a few extracts from an English prize essay, which we find in the columns of the *American Farmer*, and appropriate with the editor's introductory; for, should this grass, on trial, prove to be half in value what it seems to be in English soils, it cannot but become a valuable acquisition to our present list of forage plants and grasses.

"The accounts we receive from England, of the extraordinary productiveness of the Italian rye grass, (*Lolium Italicum*) under the high culture to which it is submitted there, may have produced an impression not altogether favorable to the idea that it may be as well suited to any system of good farming here, as to that which, in England, exhibits its peculiar value. For the following account of it we are indebted to a prize essay, written by a student of the Prince Albert Agricultural School, in Ireland. The length of the essay was too great for our columns, but we have abstracted the most material parts, and do not doubt it will prove useful to our

readers who are interested in grass culture, and will induce some of them, we hope, to make a trial of its value.

**"History and Introduction.**—This grass was brought, as its name indicates, from Southern Europe, where it is native, by the seedsman of the Highland Agricultural Society of Scotland, in the year 1831.

**"Climate and Soil.**—It has been proved by experience to be equally adapted to a cold and hot climate. Morton, in his *Cyclopædia of Agriculture*, says: 'Its hardiness or capability of withstanding extremes of temperature is obvious from retention of verdant freshness through winter, as well as in summer droughts, which destroy the ordinary gramineous vegetation—and its endurance of heat and drought has rendered its introduction one of the greatest benefits conferred on the Australian and other tropical and subtropical colonies.' In England, even when sown in September, it not only retains its verdure through the severity of winter, but is ready for cutting at a very early period in the following spring.

The Italian rye grass succeeds well on any soil of medium fertility, from a light sandy to a stiff clay, but a rich loam suits it best. It is, however, chiefly prized for the extraordinary results it yields to high culture, and especially to the application of liquid manures. There are accounts almost past belief, of its yielding eighty to a hundred tons of grass to the acre, being cut eight or ten times during the season. We have not heard of the Italian rye grass having been successfully introduced into this country; but the peculiarities here mentioned, with the high character it has in England as a forage crop, make it well worthy of careful trial on grass lots which may have the benefit of ample manuring, either for hay or for soiling.

**"Durability of the Italian Rye Grass.**—It is a biennial plant, but like our red clover will sometimes last beyond the second year. It cannot, however, be depended on for a crop after that time. Red clover seed may very properly be sown with this grass, say half the usual quantity, which not only fills up the interstices, but gives a closer soil and a heavier crop.

**"Rapid Growth.**—Of all the known forage grasses, there is none, except perhaps, the Cocksfoot, (our orchard grass) *Dactylis Glomerata*, which grows so rapidly. Mr. J. C. Morton, in a paper which he read before the London Farmers' Club, states an instance of Italian rye grass, of seventeen days' growth, having attained the extraordinary length of seventeen or eighteen inches, and weighing nine or ten tons to the acre; and, when five weeks old, was from three to three and one-half feet high, and weighed twenty tons per acre. Instances are on record where the growth was found to be two inches a day, the ground being fertilized with liquid manure.

**"Liquid Manure.**—While very little is known in this country of the use of liquid manure, and it is not likely to be brought into use here for many years, its extraordinary effects upon grasses generally, and upon the Italian rye grass especially, make it a matter of interest to every one who cultivates the soil. The merits and beneficial effects of liquid manure, when directly derived from the drippings of the manure



one. A cow will consume on an average, from nine to ten stones of grass per day; and, at this calculation, eight tons, or one acre of grass, would supply a cow with green food for upwards of twenty weeks. This estimate is nearer the *general* return than the very large crops obtained under the system of liquid manuring.

*“Opinions with regard to the General Merits of this Grass.—*The general opinion in its favor has increased in a ratio with its diffusion and cultivation. The following statements indicate the general opinion of its value:

*“‘The Italian rye grass is remarkable for the small quantity of useless matter; the large proportion of soluble carbonaceous substances, and the moderate proportion of albuminous constituents. This valuable grass has not obtained an undue reputation.’—Scottish Agricultural Almanac.*

*“‘Those who have paid attention to the cultivation of Italian rye grass think highly of it. This grass grows more rapidly in spring than any other, and is so much relished by cattle, that they scarcely allow a single stem to spring up.’—Rham’s Dictionary of the Farm.*

*“‘It is an important fact, that however rank and luxuriant the Italian grass may grow, all animals eat it with the same avidity as they would the youngest shoots, and it never has the effect of scouring them; but, on the contrary, they thrive better upon it than upon any other description of grass whatever.’—Andrews’ Modern Husbandry.*

*“‘The Italian rye grass forms almost the only food of the dairy cows in the highly cultivated districts famed for the production of Parmesan cheese. \* \* \* All animals are particularly fond of it, whether as green food for soiling, as hay, or as pasturage.’—Dairy Farming, p. 82.*

## CALIFORNIA PORTABLE HAY PRESS.

**H**ERE is another purely California invention, and one which promises to be of real utility to the farmer engaged in putting up hay or straw for distance transport. The merit of the invention lies not only in its peculiar mechanical construction and mode of obtaining the requisite power by compound windlass; but equally in its portable or locomotive character. The entire press takes the form of an ordinary strong farm wagon, with a body say twelve feet in length, three in depth, and from four to six feet in width, depending upon the size of the bale it is desired to make. The body of the wagon is opened or closed at top as required, by movable, sectional coverings, upon suitable hinges. In the center of the box is placed the follower, that by an ingenious arrangement of windlass and lever, is made to traverse alternately backward and forward as the hay is put in, and the coverings closed down; by this movement a bale is deposited alternately at the fore and hind end of the wagon, dropping through a trap-door upon the ground.

The great advantage of this press over any other, is its adaptation to locomotion;





It is also thought that the cut-worm, so injurious to the vineyards of Los Angeles, had something to do with the growth of the willow used for divisions and fences ; because their effects are more apparent in the immediate vicinity of the willows than at distances from them. It would, therefore, be well to obtain the opinions of those who have had some experience with the willow for hedging, before extensively setting it for the purpose. For the benefit, however, of those who have resolved upon growing willow hedges, and we are acquainted with three or four who are making preparation so to do, we extract the following from the *Prairie Farmer* upon this subject.

“ Some months since, I saw an illustration of willow hedge, and, subsequently, an article recommending the *Salix purpurea* as the best of the several varieties of willow for hedging purposes, in the advertising and editorial columns of the *Prairie Farmer*.

“ I fully concur with the editors, that willows are suitable for hedges on wet soil, to piece out fences across sloughs or otherwise ; and hedges properly trained and formed, on low prairie and marsh land, make excellent break-winds, as well as contribute much, especially with a Lombardy Poplar every ten or twelve yards, to vary the monotony of straight lines, and give relief to the eye by variety ; as well as useful timber, in a few years, to the improvement of the farm, both in value and appearance.

“ Having some willow hedge, as well as a large bed of *purpurea* and *triandrus* willow, in a flourishing state, and having seen something of the experience of others with willow hedges, I will now offer a few suggestions as they occur to me, on this subject.

“ It is quite true, the *purpurea* will bear cutting back well, for it has been *the* willow used for basket work, or the principal osier ; and has, therefore, been annually cut off close down as practicable, for, perhaps, a century, in localities suitable to its growth in England, France and Germany ; and there is no doubt whatever, that it will make a strong fence, notwithstanding its erect form of growth. The latter is, perhaps, the only objection to it ; for it grows fast—is easily trained or managed, and will therefore form a hedge in three or four years, which is quicker than any thorn hedge can be produced.

“ The diamond form, in which the illustration alluded to above consisted, has some objections. A hedge requires, in all instances, to be thick, and therefore strong in the bottom. If it be not thick, it will neither keep down weeds by preventing the access of light to them, nor offer sufficient resistance to stop some sorts of stock ; and must, therefore, be inefficient as a fence. If trained in the diamond form, the sap ascends as high as possible, and sends out shoots and branches at the points where the original diamond work crosses, and at the *top*. The bulk and force of the sap being expended at those points, but few shoots appear at the *bottom* of the fence, and it consequently becomes or remains thin, precisely where it should be thicker than at any higher point. In fact, all the shoots in this sort of hedge, should branch out *down to the ground*.

"The true way is to set two rows of cuttings, in well prepared soil, about twelve or fifteen inches apart, and on the break-joint plan, and they should be eight or ten inches from cutting to cutting in the row. They will throw up four to eight shoots the first year, if well put out and kept clean. These may be all cut off, except a small one or two that spread next the ground; and the second year, *all* may be cut off without fear of killing the root. This should be done early in the spring, or more properly, in February, of course. After reaching this stage, the management may vary according to taste or design.

"When all parts of a hedge are let grow, or rather restricted to the same height, the next set of shoots, and consequently the thickening of the hedge, is at the point less trimmed or clipped; and the hedge, by this means, also gets thin at the bottom. This fact led, many years ago, to the system of slashing, or cutting off each side or row, of the double rowed thorn edge, alternately, in some parts of England. When both sides reach the height of five or six feet say, and both have been clipped on the outsides, one row, or half of the hedge will make a pretty fair fence; hence, the other half is cut off as low down as possible. A mass of young shoots soon appears and keeps the bottom of the hedge thick with new growth. When these attain a sufficient growth, the other side is cut down, and so on in alternate succession. Thus, the bottom of the fence is often being renewed, and kept continually thick and strong. This is a great advantage over having to cut the whole hedge off at one time at the bottom, as would certainly be necessary, when it had become thin and dead there, by reason of the annual new growth being higher and higher each succeeding year. Now this plan is applicable, and for the same reasons, to the willow as with the thorn hedge. The engravings given in some of our books and periodicals, are very pretty to look at, but they offer no means of, or reasons for renewal, when this becomes requisite, and therefore not the best guides.

"Willows are much more easily handled than thorns, of course. Another plan, a modification of the foregoing, might therefore be adopted with the osier or willow fence. This might consist in cutting off all the branches on alternate stocks as low as practicable in each or both rows at the same time. And, on account of this rapid growth, once in three years would be none too often to repeat this process. This could not be effected with the same rapidity, nor with long-handled tools, as in the case of cutting an entire row at the same time, but the fence left would probably both have a better appearance and be really more substantial the first year after each cutting down for the purpose of renewal.

"Two or three summer trimmings, and one in February are necessary, independently of the renewing processes we have been discussing, for the purpose of thickening the hedge all over its outside; the renewal or slashing system being, on the other hand, intended to thicken it all through its lower part. The surface trimming gives a close and strong appearance, but the periodical renewal of the base and middle parts of the hedge gives it much more real strength and power of resisting the encroachments of stock. With both systems combined, a fence that will appear well and be very strong may be raised, and one that will continue those advantages through many years may be secured by renewal as often as it may be necessary."

## VINEYARD CULTURE.

**EDITOR CULTURIST:**—I have had a slight attack of the prevailing vineyard epidemic; I have set an acre and a half with grape cuttings of several varieties; I have given them a distance of six feet apart in the rows, and the rows eight feet apart. Others in this vicinity are also planting cuttings, and some of them quite extensively; and I notice that, in most cases, they are setting, or preparing stakes for setting, five feet in length above ground, one to each cutting. Now, sir, it has occurred to me, that if the practice of pruning, recommended in previous numbers of the CULTURIST, is to be followed strictly—that is, if the vine is to be cut back to two or three buds in the spring of the second year, or one year from this time—that there can be really but little necessity for stakes this year; and if not, then when they are set, they will at least last one year longer than if set now. The question, then, is, can I dispense with the trouble and expense of stakes for the first year?

PLACER COUNTY.

MOUNTAINEER.

Certainly you can; for really, there is but little use for stakes, either the first or second year. The only benefit derived from them is in securing to the vine an upright growth. For this purpose, it is the practice of some to use, for the first two years, a much smaller sized stake than will be finally required for their support—say two feet in height—which is abundantly high to give proper direction to the vine for two years, when they are removed and larger ones substituted permanently. For these shorter stakes, much smaller wood can be used, making it easier to tie the vines to, than to larger ones; besides they can be very rapidly set; on being sharpened at bottom, two or three blows with an ax, will give them a sufficient hold of the ground for all purposes. Train the vines to the stakes to the height you intend to prune back to the following spring, and all above that may be allowed to drop downward and trail upon the ground without detriment to the vine; but with a positive advantage, in all dry situations, by the increased shade and consequent moisture of the soil. By this method, a two years' service of the permanent stakes can be saved, an item of consequence in many parts of our state.

## SULPHATE OF SODA.

**A**MONG the more recently introduced manufactures, adding to the wealth and convenience of our citizens, and creditable to our state's enterprise, is the manufacture of a superior article of sulphate of soda. The principal purpose to which it is applied at present, is the manufacture of glass. Only the most ordinary success attended the first experiments in glass-making in this city, principally on account of the difficulty of obtaining suitable materials; and, among these, the most prominent was a suitable article or quality of sulphate of soda, which enters largely into the manufacture. Many are aware of the existence of what are known as the acid

works at the Mission, where nitric acid is manufactured for the United States mint, in this city, and for the further demands of commerce.

Nitric acid is manufactured from nitrate of soda, which is obtained for this market principally from Chili. In the manufacture of acid, therefore, there is left a residuum in large quantities that, until the recent manufacture of sulphate, was of no value whatever, being entirely thrown away. This residuum is a bi-sulphate of soda with excess of acid, and from this is made, by a process of refining, a beautifully pure article of the sulphate of soda. With this product our glass-makers find no difficulty in manufacturing a superior article of glass. The manufacture of the sulphate is conducted by Dr. John McCarty, at his works on Fourth street, four doors from Folsom, and his establishment is well worthy the attention of all who may feel an interest in the progress of manufactures in California.

#### CATTLE FEEDING.

EDITOR CULTURIST.—We greatly approve your out-spoken rebuke of the stock raisers of California. Their neglect to provide sufficient food inflicts cruelty upon the cattle, and will bring poverty upon themselves and loss to the nation.

You have left unmentioned one chief cause of the scarcity of pasture. The principal grazing in Mexican times was in the valleys. These afforded grass during a great portion of the year, when the hills are bare. Now, encfencement has shut off this source of supply; and it is out of the question that even a tithe of the former number of cattle can be supported. Nor can any cattle at all be kept in proper condition upon hills, that are in fair pasturage for only a small portion of the year, and which are annually running more into weeds for want of tillage. Making hay of the wild oats is another destructive innovation. By cutting the crop while it is green, there is scant seed for the renovation of the crop. The cattle men of our state will have to prepare for a change of system. As the American system displaces the Mexican, there must be a corresponding change in the manner of herding cattle. Under Mexican customs, the wild oats of the hills were allowed to ripen, the superior attraction of the valley grasses in spring time keeping the cattle away; so that stock were usually fed, through the dry season, upon *ripened* oats standing where it grew. It is well known that the berry of oats does not shell out here as in the states—a provision of Providence nicely adapted to the purpose of preserving the crops for summer feed and for autumnal seeding.

Now, all is changed. This providential provision for the peculiar wants of our dry season is withdrawn by our own counteraction. And we must look for a substitute without delay, or disaster will befall us. If we would continue to raise cattle, we must provide against the out and out despoilation of pasture, which is going on with terrible rapidity. A law to prohibit the trespassing of wandering herdsmen upon private domains unfenced, would just now be unpopular. But it seems as if the force of circumstances must work a change in public sentiment. The squatter



cows. During the greater part of the year our grazing ranges yield insufficient food. Our cows are put to the hardest work to glean a scanty living on the embrowned hill-sides of our dry season. In even rich pastures, three-fourths of what the animal eats goes to its subsistence. It is from the last quarter that we get our profit. On this account, a very little hand-feeding, in the rest of evening, will readily double the yield of milk, counting quality at its worth. For hand-feeding there is nothing like the sugar beet in this climate where it flourishes and keeps green perennially. With wind-power cut up your oat-hay and roots—soak the hay and mix for feed. Give this care to your cows, and you will find preference in the market and money in the pocket.

ANTHRAX.

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**NAPOLEON'S WAR HORSE.**—Everybody has seen a copy, in some form, of the famous painting, "Napoleon crossing the Alps," and everybody doubtless remembers the noble looking white horse in the fore ground, which bears upon his back the young general of the army of Italy, who leans upon the neck of his rearing steed, and points to the long lines of soldiers climbing by tortuous paths the steep and rocky passes of the Alps. This horse is not a mere artist's ideal, but was intended as a portrait of Napoleon's horse Superb. This beautiful animal was a light gray Arabian, about fifteen and three-fourths hands high, slightly, but compactly built, possessing remarkable intelligence and great muscular power, combined with a nervous, active temperament, and a strong, vigorous constitution.

Superb was a great favorite with Napoleon, and accompanied him in many of his most successful campaigns. In 1813, during the disastrous retreat from Moscow, he was captured by the Russian general Orloff, who kept him at St. Petersburg till 1834, when he was presented to the father of M. Tourmiaire, then manager of the imperial circus, a passionate lover and accomplished trainer of horses, and well known for his devoted attachment to the memory of the great Napoleon. Gen. Orloff, in presenting the horse, said, "Jacques Tourmiaire, you were greatly attached to the late Emperor of the French, and your attachment honors you. You are known to be a favorite of horses; and, satisfied of the care he will receive at your hands, to you I confide this, my greatest favorite. Superb is too slight for my use. I have grown too heavy for him. To sell him to a strange master is a fate to which I cannot think of subjecting him. To you, therefore, I intrust him; and, as you loved him to whom he first belonged, you will, I am sure, cherish Superb for the memory of his owner, as well as for his own sake." The horse was well cared for by his new master, who brought him upon the stage, and taught him to perform some light parts in pieces performed in the circus. Jacques Tourmiaire died in 1839, and left Superb to his son, who treated the veteran still with the tenderest care. He was subsequently exhibited in London and other large cities. Several years since, we read a short history of this horse, published in an English journal, and, if our memory serves us well, it was stated that he was foaled in 1802, and died in 1841, having lived to the extraordinary age of *thirty-nine* years.—*American Stock Journal*.





### GRAPE SOILS—THEIR RELATIVE VALUE.

EDITOR CULTURIST:—I have been seeking for some time, for information with regard to the adaptation of different soils to grape culture; and, knowing it to be an object of general interest, I have concluded to seek information through the columns of the CULTURIST.

1st. The relative value of all our wine-producing soils, at least so far as they have been tested; the quality of the grapes from those soils, and the quality and quantity of wine made from those grapes; and, more particularly, I would like to know something of the adaptation of the following soils and localities, for the wine-producing grapes. Loose, clayey loam, depth from six to ten feet, gradually merging into clay, mixed with gravel, is very fertile, and retains moisture sufficient to mature corn and garden vegetables to perfection, and in which fruit trees promise well, but have not yet fruited—location, level bottom.

2d. Sandy loam, underlaid with gravel, possesses natural drainage, is devoid of irrigation, except from capillary attraction, and yet possesses moisture and fertility sufficient to mature corn and superior succulent plants.

3d. Whether the foot-hills, or first elevations from our river bottoms, are capable of producing superior wine grapes.

4th. What varieties of grapes are best adapted to the above mentioned soils and localities.

Hoping to receive the desired information from you and your experienced contributors, I remain yours respectfully,

THOS. J. BIDWELL.

HEALDSBURG, March 19.

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In regard to the relative value of our wine or grape-producing soils, we believe it is now admitted by every one that the uplands will produce a better quality of grapes for wine, than can be produced from the same kind of grapes grown upon our low, river alluviums. That such alluviums may produce, in some cases, more wine is not doubted; but the day is not distant, when the value of a California vineyard will be measured, not so much by the quantity of wine produced, as by its quality. A loose clay loam, such as our correspondent describes, would undoubtedly produce a large crop of grapes; but we never should expect to make a very superior wine from them; and, if in a district of country subject to late spring frosts, should expect greater injury to the vines in such low situations—particularly if inclined to surface moisture—than though occupying the uplands.

The soil described under the second head, would undoubtedly prove an excellent one for wine grapes, particularly if, to some extent elevated, and not exposed to the cold, raw, ocean winds. If thus exposed it is useless to expect to grow fine grapes, without artificial protection. There are very many excellent soils in California, in localities where the climate will not admit of their profitable culture; thus, care and judgment, in this regard, are highly necessary in the selection of vineyard sites.

The third query of our correspondent can be answered unhesitatingly in the affirmative, provided the soil contains sufficient moisture, is ordinarily fertile, and the climate congenial.

As to the varieties of grapes best adapted to particular soils and localities, in California, it is at present impossible to determine, so far as regards their value for wine. There are certain varieties we know are superior to others for raisins; but when we come to talk about wines, we know nothing positively; for it must be remembered that, in the best wine district of France, a very great difference is found in the quality of the wines from the same varieties of grape, produced upon only opposite sides of the same hill, and even from the same side, but at different altitudes. Thus, we can see at once the difficulty of arriving hastily, at any positively correct conclusion, in reference to the best grapes for wine, in the varied soils and climates of California, or even the one district of our correspondent—the Russian river country.

We would here remark that, in the queries of our correspondent, we see the advantage that might accrue to grape-culturists, if they would give the result of their experience with the different varieties of grapes in their respective soils and climates, through the columns or pages of any agricultural journal with an extensive circulation in all parts of the state. It could not but inure greatly to the interests of all concerned in wine-making, or about to embark in the undertaking; and we hope our friends and patrons everywhere will for this purpose avail themselves of the pages of the CULTURIST.

## A CALIFORNIA WORK ON BEES.

**W**E continue our extracts from Harbison's forth-coming work on bees, because the season is now upon us, when the facts and hints it contains will be of service to many a novice.

**QUEEN NURSERY.\***—The other half of the brood combs, in which are principally eggs and young larvæ, together with the remainder of the store comb, is to occupy the original hive, after the verticle queen nursery is arranged as follows: Take a comb and choose that portion of it in which eggs, and a small portion of newly hatched larva is found, and with a knife, cut out a section, as shown in plate —, figure —. *H* is the section, and should be cut three inches long, and one and one-quarter inches wide; the ends are cut beveling, to form supports for the piece of comb which is to be re-inserted with the mouths of the cells downwards or vertically. *I* is a space of half an inch, made under it by cutting away a portion of comb, giving room for developing queens in a perfectly straight and natural position. Two of these sections should

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\*Patent number 26,431, dated December 13, 1859: was granted to J. S. Harbison, of Sacramento, California, for an improvement in bee hives. I claim placing the bee comb, known as worker cells, in a horizontal, or nearly horizontal position, so that the cells shall be vertical, or nearly vertical, instead of horizontal, by the means, or their equivalents, substantially as set forth and represented.

be arranged in one comb, and two combs so prepared ; a store comb is first placed on one side, and these two combs prepared as above, placed next to it, and the balance of the brood and store combs next to these in a compact manner ; an empty frame is added, and a cloth reaching over the top and down the sides, to the bottom of the frames, is covered over as shown in the plate.

**THE BEES TO BE DIVIDED.**—The bees are now to be equally divided between the two hives, and the glass frame and honey board put in their place, the hives closed up, and the apertures arranged for the egress and ingress of the bees. The hives are then to be placed, the one on the right and the other on the left side of where the original one stood, and may be placed within a few inches of each other.

**EVENING THE BEST TIME.**—This primary divide is best performed in the evening, about one hour before sundown, yet it will do at any time of day. They should be watched for the first few hours that they fly, to see that a proper proportion of them enters each hive. If more are found to enter one than the other, move the one that most enter further away, and the other nearer to the place where the original hive stood. If this still does not effect the object, close the entrance of the strong one for about two hours, and force the returning bees to enter the weak one. When the apertures are again opened, a board or cloth may be placed so as to change the appearance of the one receiving more than its share of bees.

**BEES COMMENCE TO BUILD QUEEN CELLS.**—The bees now finding themselves without a queen, but in possession of the means to rear young ones, quickly commence to enlarge and build downwards a number of the cells containing eggs, at the same time the young larva is supplied with a quantity of whitish matter, called Royal jelly, which is of a slightly acid, pungent taste, and is different from the food on which the common brood is fed. These royal cells are sealed, a part of them on the sixth, and the balance on the seventh day from the time of forming the nursery ; when the cells are finished, they present the appearance shown in plate —, figure —. *J* is the queen cell, and *k* is a worker brood emerging. The queen cells are straight, and occupy a pendant position ; the queens are larger, more perfectly developed, and a greater number are reared by this method, than when the colony is left to rear them, as shown in plate —, figure —. *I* is the queen cell, being built outwards and downwards, so that the young queens grow in a curved position. This being an unnatural shape, the queen is not so large or well developed as when raised in straight cells, as previously shown. Where new built comb, having eggs in the outer range of cells, or where eggs are next to an aperture, then the bees build straight queen cells, as shown in plate —, figure —. *E* are the cells ; these are good, but it is seldom that so fine a specimen is found. The only danger when cells are built on the edge of the comb, is their liability to suffer from a chill, which retards them, and in many cases, entirely destroys them. This danger is avoided by the vertical nursery being arranged so that it occupies the center of the cluster<sup>d</sup> of the bees, by which means a chill is avoided. The bees never move an egg from one cell to another, for

the purpose of development; hence, it is obvious that they will not always be in a position suitable for straight cells, unless so arranged by the bee-keeper. This plan is found to produce as finely developed and prolific queens, as if raised vertically to supply natural swarms.

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## HORTICULTURAL PRACTICES.

BY J. J. JOHNSON.

EDITOR CULTURIST.—With both interest and profit I have carefully perused the arguments of Mr. Flint, in your March number, on the tap-root question; but, whilst I cannot but admire his sagacity in argument, I must be allowed to say that I think he has not fairly met the question. In your February number, I took occasion to point out the locality where trees had been grown to orchard size, and are now bearing abundantly, in the place they had occupied in the nursery row, having never suffered removal. I also desired to be pointed to a locality where the reverse of this can be shown; that is, where trees grown from the seed, without removal, were unproductive, or produced only “sappy, spongy wood, destitute of fruit spurs.”

Now, in showing up an instance of this kind, Mr. Flint, instead of naming a locality where such an instance is apparent, points to the McMurtry orchard, in Alameda county. Now this, I say, is not fairly meeting the question; for this orchard, which appears from Mr. Flint to be but illy inclined to produce fruit, was planted out after the usual mode of transplanting from the nursery row, with the usual destruction of the tap-root, and were not planted and grown from the seed in the places they now occupy, as I had proposed. I say it is not fair to instance an orchard grown upon his *own plan*—proving unproductive—in proof that one grown upon *my plan*, must necessarily be so. I think, too, there may be a possibility of some mistake in regard to the trees of the McMurtry orchard possessing the tap-root at all. It is generally supposed, by the advocates of only surface roots for trees, that to destroy the main tap-root at transplanting, effectually prevents its after formation. Now, if this be true, the McMurtry orchard has no tap-roots, and its want of productiveness cannot be attributed to them.

On the other hand, some contend that nursery trees, on removal to the orchard with loss of the tap-root, are supplied by a renewal, in the form of two or more smaller, in the place of a single large one. Now, if this be true, then the greater part of our orchard trees have tap-roots after all, and in the main, are the most productive of their respective varieties the world can produce, for early and extreme fruitfulness is characteristic of California fruit trees. I repeat it then, that, if all California orchards reproduce the tap-root or roots after removal from the nursery, running deeply downward, then no serious objection can be made to them, which is just our position. If they have not such roots, then there is no fairness in bringing up an orchard, grown upon the removal plan, as proof against one grown from the seed in place, when we point to trees grown upon this plan as an undisputable success.





through quartz rocks, and it is among these that it is principally sought. It is true that gold is obtained by washing the sands of rivers in Africa, Hungary, and some other countries, and no doubt the sands of many of our rivers, especially the mixed, black ferruginous and quartz kinds, contain it in considerable quantities; but, by the old methods of washing and amalgamating, it would not pay to operate them. By the new method, however, these sands may be ground and operated with success for their gold, and we have seen some samples of such, from which, we were assured, more than fifteen dollars per ton had been reclaimed. Here is another spacious field for operation, during the year 1860, to increase the yield of our precious metals.—*Scientific American.*

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**WHERE THE COLD COMES FROM.**—The Smithsonian Institute, through its extended system of meteorological observations, has been enabled to make some very curious investigations respecting the three memorable cold days of January, 1859. It was found that the cold of the three days above mentioned, swept progressively over the country like a wave, coming down from the Arctic regions and first entering the territory of the United States, at the extreme north-west, among the Rocky Mountains. It was experienced at Utah some three days before it reached the banks of the northern Mississippi, and was heralded by telegraph at Minnesota some two days before it reached Washington. At Buffalo it was some hours in advance of Boston, and was felt last on the Atlantic ocean, where it appears to have vanished. This cold wave also swept south in a most remarkable manner, and progressively appeared in Florida and other southern states, and Mexico; and the last pulsations, as it died away in this direction, were experienced in Central America, and among the West India Islands. Taken all in all, it was one of the most remarkable meteorological phenomena ever noticed, and the facts collected seem to prove that the originating impulse came from the extreme northwestern portions of the American continent.

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**THE VICTORIA BRIDGE.**—Before the great Victoria bridge, at Montreal, was accepted of the contractors, it was put to the severe test of a loaded train weighing the enormous load of one ton to a square foot, which it was difficult for three powerful locomotives to drag along. While in the first tube only, the deflection of that tube was seven-eighths of an inch, the adjoining empty tube being lifted in the middle three-eighths. The load being placed half over both tubes, the deflection was the same in each—three-fourths of an inch; and when run wholly upon the second tube, the result was the reverse of that in the first. The final test was on the long central span (three hundred and thirty feet) where the deflection was only one inch and three-eighths. In no instance was the deflection greater than five-eighths what it was expected.

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**HOW A TOAD PULLS OFF HIS PANTS.**—A writer in the North Carolina *Farmer* tells the following: "About the middle of July, I found a toad on a hill of melons, and, not wanting him to leave, hoed around him. He appeared sluggish, and not

inclined to move. Presently I observed him pressing his elbows against his sides, rubbing downward. He appeared so singular that I watched to see what he was up to. After a few smart rubs, his skin began to burst open straight along his back. Now, said I, old fellow, you have done it; but he appeared to be unconcerned, and kept on rubbing until he had worked down all his skin into folds on his sides and hips; then grasping one hind leg with his hands, he hauled off one leg of his pants the same as anybody would; then stripped the other leg in the same way. He then took his cast-off cuticle forward, between his fore legs, into his mouth, and swallowed it; then, by raising and lowering his head, swallowing as his head came down, he stripped off the skin underneath until it came to his fore legs, and then, grasping one of these with the opposite hand, by considerable pulling, stripped off the skin; changing his hands, he stripped the other, and by a slight motion of the head, he drew it from the throat and swallowed the whole. The operation seemed to be an agreeable one, and occupied but a short time."

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**INDIA-RUBBER TOOLS FOR MACHINISTS.**—Mr. Thomas J. Mayall, of Roxbury, Mass., who has long been engaged in the enterprise, has succeeded in producing a composition, the basis of which is india-rubber combined with emery, from which are manufactured files, emery wheels, grind-stones, hones, razor-strops, scythe-rifles, knife-sharpeners, and a variety of other articles of like nature. The files wrought from this new composition can be molded into any desirable size or form, and adapted to every variety of mechanical business in which the common rasp and file are employed. They can be made as rigid as the steel file, or as flexible and elastic as the original gum which forms the basis of the invention. Emery wheels and grind-stones are wrought from this composition, of every desired shape and size, from the coarsest grade of emery to the finest buff wheel. In point of economy, the new composition is superior to any of the implements which it is destined to supersede, since the articles made from it are serviceable until the material of which they are composed is entirely worn away. It possesses the virtue of repelling oils and solvents. Of the great variety of useful and ornamental forms which india-rubber, through the skill of the inventor, has been made to assume, this is regarded as the latest and most important application. This composition has been perfected by a new process and principle discovered by Mr. Mayall, and we learn that the rights of the discoverer have been duly secured in the United States, and in all the nations of Europe.—*Boston Journal*.

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**TERRIFIC HURRICANE.**—The neighborhood of Calne, Scotland, was on the 31st of December, visited by one of the most destructive storms ever witnessed. It appeared to have a curvilinear motion, and progressed at a rapid rate. Symptoms of an approaching storm were visible at one o'clock, P. M. The whole atmosphere became thick and heavy. It was so dark that it became scarcely possible to read without artificial light. Presently, the vault of heaven was lighted up by vivid flashes of lightning, accompanied by loud and sudden claps of thunder, which,





**THE CLIMATE AND RESOURCES OF MOROCCO.**—Morocco is called by the Arabs, “the land of the extreme west,” from its position in Africa. Its territory is about five hundred miles long by three hundred and seventy-five miles wide, intersected from south-east to north-west by the chain of the Atlas mountains. The climate is very hot during the months of June, July and August—the rainy season continues from September to April. Much of the year, however, the climate is pleasant and agreeable, and the winter is frequently interrupted by intervals of fine weather. The soil of the country is fertile, and yields three crops in a year. Indeed, such is the productiveness of this empire, that if it were well governed, and proper encouragement given to agriculture and commerce, it could supply all Europe with wheat, barley, rice and maize. In some portions, tobacco, cotton, saffron and sugar cane are cultivated. Pastoral industry is most pursued however, the Berbers and Chelloks devoting themselves to it almost exclusively. According to the latest accounts, supplied by the European consulates, the live stock of the country comprises 500,000 camels and dromedaries, 400,000 horses, 2,000,000 mules and asses, 5,000,000 cattle, and 50,000,000 sheep and goats. These statistics, which are not far from the truth, show the resources of the country.

**AFRICA.**—Dr. Livingstone has sent home samples of cotton and cotton yarn; the sample of cotton is excellent, but the most surprising, is a ball of yarn, spun by the natives, weighing sixteen and three-fourths ounces, the cost of which is one foot of calico, or one penny. The yarn is very strong and well spun. The cotton was grown in the valley of the Shire, and is very abundant. The navigation of the Zambesi and the Shire is open to the center of this cotton valley during a great portion of the year, and Dr. Livingstone deserves the support of the government and his countrymen in developing the resources of the regions he has opened to commercial enterprise.

**TREES.**—The Japanese have a custom, uniformly observed among them, by which every man leaves on his grounds as many trees as he finds. Hence, in Jeddo, the forest city, some groves covered several acres, and were in the most perfect state of nature; in other places were to be seen neat houses, finely shaded with gardens and ornamental shrubbery, trimmed into fanciful forms of every description.

## PLANTING SORGHUM.

**A**N inquiry comes to us about planting sorghum, or Chinese sugar cane; the kind of soil best adapted to its growth, time and mode of planting, its culture, its relative value as a forage crop compared with the natural grasses of our lowlands, its probable yield of sugar, or sirup to the acre, and where good seed can be procured.

Any description of soil in which corn can be grown to perfection will produce good sorghum. In California, there are many soils that produce an excessive growth

of corn-stalks, often from fifteen to twenty feet high, with but a small or very inferior growth of ears. Varieties of corn that have not this habit in the Eastern states, assume it here. This is a highly favorable habit in regard to sorghum ; the stalk is just what we want rather than the seed, and nowhere have we heard of a better growth than in a few localities in our own state. Stalks have been produced in abundance, twelve feet in height, and, owing to our long continued summer sunshine, the juices are found to be of the richest kind—the stalk yielding its saccharine product in the greatest abundance.

There is hardly a river alluvium in the state that would not be admirably adapted to the growing of sorghum. Prepare the ground precisely as for corn, and plant at the same time you would corn, in rows four feet apart, and the hills two feet apart in the rows, allowing three stalks to each hill. One experimentist says, three feet apart each way, running the cultivator both ways, which leaves the hand-hoeing and weeding but trifling ; he would have four or five stalks to each hill. Under our perpetually brilliant sunshine, more stalks or canes can be grown to the acre, fully perfected in their juices, than in the Eastern states, where clouds and rain prevail so much of the time. The summer culture should be precisely as for corn or broom-corn, keeping the surface mellow and free from weeds.

As a forage crop, it probably has not its equal if properly managed. For this purpose it should be grown differently ; the rows should not exceed three feet apart from centers ; whilst the seed should be drilled, and as near as three inches, or even a little less, will not be too close to grow the canes—the object being to get a much larger number of canes to the acre, but smaller in size, as being better adapted to feeding. In all cases, however, the canes for feeding should be cut in a straw or stalk cutter, in lengths about equal to the diameter of the canes. Very many feed the canes whole with excellent success, but to cut them is better, and fully pays the expense.

The yield of sirup is seldom less than three hundred gallons an acre, and often reaches five hundred gallons in favorable seasons. As a home product, requiring but ordinary skill in its manufacture, we know of nothing that promises a better return for the labor required, inasmuch as that the season in which the sirup making is performed, is one of comparative leisure to the California farmer. In the culture of the cane, particular care should be had that no broom-corn is grown in its vicinity, as it mixes easily in the blossom, which greatly deteriorates the seed for further production. This fact readily accounts for the lack of the saccharine principle in canes of the second and third years growth in certain localities, leading to a belief that a change of seed is particularly necessary in growing this product to perfection. A change of seed is only necessary where it has been rendered impure by being contaminated with broom-corn contiguously grown. We expect to hear good accounts of the sorghum crop of 1860, in California. Our correspondent can obtain seed of S. W. Moore, 110 California street ; of C. L. Kellogg & Co., 111 Sansome street, or of J. R. Ray, 106 J street, Sacramento.

## PLANTING POTATOES.

EDITOR CULTURIST:—Please allow me to say a few words to my fellow-laborers of the soil, about planting potatoes. I know there are many who believe they can learn nothing new to their advantage, about raising corn or potatoes, or indeed, any of the ordinary farm crops; but I find that, though I had entertained very much the same opinion for years, I have made a discovery of importance to me, and may be of benefit to others. I have always, till two years ago, practiced upon the old plan of cutting my seed potatoes, and planting them say about three inches deep; for, in all good potato soils, they will vegetate at this depth better than if covered deeper. Year before last I cut my potatoes as usual, meaning to have two good eyes to each piece, in all except enough to plant two rows across my field; for these two rows, I just cut good sized potatoes in halves; and, as I commenced planting them, it occurred to me—I don't know why—to plant them deeper than usual; so I gave them a covering of about five inches. These two rows were cultivated, in all respects, like the others; they required, of course, a little more weight of seed in planting, but the result was a yield of a little over one-fourth, in favor of the deeply covered rows.

Here, then, I found a matter worth looking into; for, was it the greater depth at which the seed was covered, or was it the mode of cutting the seed in larger pieces than formerly, that gave the increased yield. Last year I renewed the experiment; I planted my potatoes—some whole, some in halves, and some cut to one and two eyes only in each piece—and covered all six inches, except that I covered a few rows of each description of seed after the old plan of shallow planting. Now for the result: A large part of the finer cut seed, covered six inches deep, rotted in the ground; that portion cut in halves, in a very few instances rotted, but only a few—the bulk of the seed grew finely, and produced a better yield than either the whole potatoes, or halves, or finely cut, planted shallow; but the whole potatoes, planted six inches deep, gave the best yield of any, and largely more than enough to compensate for the extra quantity of seed required. My soil is alluvium, inclining to clay or adobe. This fact about growing potatoes, in a California soil and climate, I have learned, not from books, but from my own experience.

BODEGA, March 20th.

AN OLD POTATO-GROWER.

It is doubtless very true, MR. POTATO-GROWER, that you made your discovery, *not from books*, but from your “own experience;” but, sir, have you ever published your experience in any newspaper in the state? Do you intend so to publish it? If not, how could our more than two thousand subscribers ever have obtained the information you now impart? And, though *you* did not, will not *they*—our subscribers—all of them obtain the information from a book, or an agricultural journal, which makes a very desirable book, when, at the end of the year, we bind your volume of the CULTURIST, free of charge? And is the information you impart any the less desirable to those who may profit by it, because obtained from a book? Your



grown bees, to a greater or less extent. The new sealed brood die in their cells, and are suffered by the bees to remain and rot, giving out a most offensive effluvia that is easily perceptible on opening the hive. It is from the effects of this disease principally, that so many bees *swarm out* and desert their hives entirely, and *not* from the loss of the *queen*, as is generally supposed; for *no queenless colony will thus leave, but remain till they gradually die out*. The propensity to swarm out is mainly confined to a particular season, which is the early spring. After the principal breeding season arrives however, they will adhere tenaciously to the hive, although very badly diseased, or destitute of honey; on opening and examining the combs of such hives, the cause of desertion is readily determined.

The chilled pupa remain entire, without giving off noxious effluvia, and the bees can remove them as soon as it is discovered; but the foul brood is generally suffered to remain without being uncapped; the putrid remains of the pupa pass off in exhalations through the pores in the capping of the cells. This process goes on slowly—probably requiring not less than five or six months to exhaust them. The foul brood may be known by the capping of the cells: those containing dead are of a darker color and slightly sunken; while a chilled brood has the cappings of the cells raised almost invariably. When cells are found capped, but, on opening them, are empty, it is a sure indication that the *disease exists*, either in an active or dormant state; it being seldom that old capped cells are found resulting from any other cause. All the principal authors agree that the disease is contagious; that honey carried from diseased hives, will communicate the disease to those receiving it, although previously healthy.

Remedial experiments have been tried by various writers, but with only temporary success. Mr. Langstroth says that, to remove the bees into new hives, and supply them with healthy comb, they will thrive and appear healthy during that season; but, in most instances, the disease reappears in the following summer.

There has thus far been no remedy discovered to entirely cure the disease; hence, the only safe plan to be pursued is, as soon as a hive is discovered to have it, either burn or bury the whole thing—hive, comb, bees and all. No hive that is weak or deserted, should be permitted to stand where other bees can have access, so as to carry off their stores. All honey not known to have been taken from healthy hives, should be rejected for feeding purposes, and sugar used in its place. If all bee-raisers will persevere in destroying every vestige of this disease as above recommended, there can be no doubt but that it can be eradicated from this state, and the business of bee-raising placed on a sure and permanent basis.

SACRAMENTO, March 23d, 1860.

J. S. HARBISON.

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THE BEST NATIVE GRAPES.—The Grape-Growers' Association, of Hartford, Conn., at a late meeting, decided by ballot that the Diana, Hartford Prolific, Isabella, and Concord, were the highest estimated, and also held position as they are named.

### BEES—ARTIFICIAL HONEYCOMB.

**A** FEW days since, we called on J. V. Hoag, a skillful bee-culturist of Yolo Co., and were shown some beautiful specimens, of his own manufacture, of what he calls, "artificial comb." We think it might, with more propriety, be termed the superstructure of honeycomb, than comb; because it is, after all, but the commencement, or formation, upon or to which the bees attach their newly made comb. It is made of pure beeswax, and resembles just that portion of a honeycomb which makes the division between the inner ends of the opposite ranges of cells. We are probably understood, but will further specify, by supposing a piece of honeycomb, four inches by eight, to be set up on edge; now, if all the cells on both sides containing honey were scraped off with a sharp knife, there would still be a thin partition remaining. This partition, made artificially, for purposes of which we shall speak, is the "artificial comb."

It is not merely a sheet of wax, as thin and smooth as paper, but is so moulded—for it is cast in a mould—as to present the peculiar indentations and protuberances that exist in all such divisions when made by the bees; for it must be understood, that though the cells are on opposite sides of this division, the individual cells are never exactly opposite each other; but the centers of the cells on one side will be opposite the point of union of three cells on the opposite side. The reason why bees put their comb together in this way is doubtless to give it greater strength; for the same reason that the thin sheet-iron, with which houses are built, is crimped, or waved. Be this as it may, the "artificial comb," when introduced into a hive, of any of the "movable frame" varieties, presents to the bees a perfect superstructure upon which they immediately proceed to build, and always much sooner than though an open, barren frame without comb had been offered them.

One great merit of this "artificial comb" is this: If, in early spring, a central frame is removed and its place supplied with one furnished with the "artificial comb," the bees will immediately proceed to build brood comb, the queen supplies it with eggs, and an earlier colony is propagated than would otherwise have been. Another advantage in the use of the "artificial comb," is that of inducing the bees to make their comb regular and true on the frames, instead of running crosswise as they sometimes do, making it difficult to draw the frames without injury to the comb and bees. The "artificial comb" is a German invention, and in the hands of a skillful apiarian, possesses more of merit than we are at present able to explain. Mr. Hoag is probably the only apiarian in the United States, who has taken the trouble to obtain from the inventor or his successor, in Germany, the moulds for making the "artificial comb." We have some specimens of Mr. Hoag's manufacture, which we will be happy to show to any who may feel interest enough in the subject to call on us.

## RAISING CATTLE AND PASTURAGE ON THE TULE.

**EDITOR CULTURIST:**—Since there are millions of capital invested in stock-raising in this state, and in many instances, during the last two winters, splendid fortunes have vanished, like a dream from the dreamer, and what is worse, “the end is not yet;” there is a question involved, and it resolves itself into just this: What are the capabilities of the state for raising stock? At present, it must be admitted that they are but about one-half equal to the amount of stock; but how stands the matter for the future? The answer to this, upon a certain contingency, is most satisfactory. Drain the tules, and we will have an abundance of good pasturage, and better than California has yet had; for, on the highlands, grass grows only five months in twelve; in the tules, as they are, it grows eleven months, and by draining them, grass will grow upon them all the year round. The grass on the undrained tule, to be sure, is coarse, and not so nutritive as it is on the highlands; but this is remedied as soon as the second season after it is drained; it then becomes sweet, tender and nutritive. This is owing to the grass changing its character, in consequence of the change in the condition of the soil; for the grass does not die out as it is supposed to by many, for its tenacity of life is wonderful, and as soon as the change by drainage is complete, the transformation, I firmly believe, is into red-top grass, or something very much like it, and full of red clover.

Should this fact prove generally true as regards the drained tule, what better surface diggings—gold or silver—can we ask for, than the numbers of fat cattle, butter, cheese, etc., which these inexhaustible tules will produce to us? It don't matter by what name you call the grass, we know this beyond a doubt, that drying the tules, sweetens the grasses and makes them more nutritive and tender.

The next practical question is, What will it cost to drain the land so as to make it in the highest degree available? To drain a section of land at a time, or one section alone, will require four miles of ditch, or twelve hundred and eighty rods, which, at one dollar and fifty cents a rod, would be one thousand, nine hundred and twenty dollars, or just three dollars an acre. Such a ditch would be five feet wide by four deep. The original cost per acre being one dollar, to which add about twenty-five cents for survey, and the cost of the land, ditched and drained—which ditch and bank is an ample fence—will be four dollars and twenty-five cents an acre. This calculation can be relied upon, as our ditches, so far, have not cost us that sum. But you will please bear in mind, that when four sections are surrounded by ditch instead of one, the cost per acre of ditching is reduced from three dollars an acre down to one dollar and fifty cents an acre.

There are a number of people who are seeding the undrained tule land with red-top, timothy, and wild oats, which is perhaps well enough, even though, in some situations, the land is half the time under water.. I think it would be well, however, for such as are doing it to bear in mind that these grasses, if they grow, will ultimately degenerate, turn sour, or run out. It will be a much better plan for such to save their seed, as its cost will half pay for drainage, and when this is done, a per-



manent improvement is affected. I would not recommend another plan either, that some are pursuing—that of draining the land and then seeding to grass without previous cultivation of the soil. It is a tedious and uncertain way, and the seed has too much to do to “root out” the tules and wild grasses.

There are two plans, then, for making very good pastures of tule lands. One mode is the improvement of the natural grasses by drainage, without any working of the soil; the other and better mode is by reclaiming the land first, by ditching and a thorough burning of the whole surface, and then sowing grass seed. This latter plan is the safest, the most time-saving, and the best paying; for it costs but little or nothing to burn over the ground—twenty-five cents an acre will do it—and, when it is done, open the sluices, let in the water, and leach the burnt ground, and without further preparation of the soil, sow your seed, and a fair crop of grass or hay can be obtained the first season. This plan, though the best, has one objectionable feature; it is that stock must be kept entirely off until the burnt ground gets firm enough for cattle to walk upon without poaching it, as this would greatly damage both the smoothness of the surface and the grass.

It would be well for those about to purchase a stock, tule farm, to keep an eye to shelter, as it is very important. A belt of timber on the north and west sides, in this district of the state's tule country, can hardly be dispensed with; but if it cannot be had on both sides, let it be on the west, if possible. It is astonishing to see what a difference there is between cattle that are wintered under the partial protection of a belt of timber, and those that are kept on the open tule; but in the worst situations on the tules, cattle do better than on the bleak hills, with their scanty winter forage. Mr. Editor: In my article on Raising Hogs on the Tules, you made me say that the pigs should be taken from the sow, at the age of “six months;” it should read “six weeks.”

THOMAS CUBBINS.

### CHERRY TREES FROM SEED.

VERY many who have attempted the raising of cherry trees from the seeds or stones, and particularly if imported from abroad, know how difficult it is to induce their germination; hardly one in ten will grow with the ordinary management they receive, or indeed, with any management, after suffering the drying ordeal to which they are almost necessarily exposed, when packed in the usual manner we find them for transportation. Our object in what we now say is, to propose a method by which such cherry seeds as are grown in California, may be induced to vegetate with more of certainty than has ever obtained by the usual processes of keeping the seeds or stones through the winter, before expecting them to vegetate.

It is not unusual to see the plan recommended of keeping them in sand, or slightly moistened soil, from the time of eating the fruit to planting time; indeed, this has been the only really successful practice. But we would now propose, that the seeds be planted immediately, or very soon after they shall have been taken from the fully

ripened fruit, in soil adapted to their immediate growth, as regards moisture, warmth and fertility. The stones require cracking; then the other conditions of growth being properly observed, they can be relied upon for a very fair growth before the autumn frosts.

Whenever we have advanced anything new, as regards the propagation or cultivation of any horticultural or pomological product, we have a cotemporary, of high old renown, that almost invariably pitches into us for what he calls "theorizing," or stepping out of the old-fogy stage, and taking a seat in the more modern built car of progress; whether he will do it in this instance, remains to be seen; but if there is any one incredulous enough not to believe that cherry stones that were grown last year in California, and immediately after the ripening of the fruit, were planted, and from these seeds trees were grown, that before winter were from eight to twelve inches in hight, and now again in fine growing condition, let him call on on J. L. Sanford, nursery tree and fruit dealer, San Francisco, and he can be satisfied on this point. We are in a country of anomalies, as regards much that pertains to vegetable growth, and many of our practices in the science of horticulture, may be alike new or anomalous.



### INQUIRIES AND ANSWERS.

**EDITOR CULTURIST:**—During the last winter, I procured a variety of fruit trees from three different nurserymen, all of them, I believe, of established reputation and reliable. That the varieties will prove true to their names, I have no reason to doubt; but I hear a great deal said in the *CULTURIST*, as well as in Eastern agricultural journals, of the advantages of having trees branch or limb out low down. Now, of the trees that have been sent to me for two-year-old trees, a large proportion of them are beautifully straight bodied, particularly the cherry and pear trees. Hardly one of them has the appearance of a limb within three feet of the ground; above this, they are well supplied with limbs; indeed, they seem to have been grown precisely upon the "flag staff" plan, spoken of by Mr. Flint, in the March number, though without the tap-root. Now, from what you have heretofore said about the difficulty of getting trees to branch any lower down than the limbs already formed with a year's growth the start, I judge I may have difficulty in getting them to limb out as I would desire them to—at eighteen inches from the ground, for apple and pear, and for cherry trees, three feet. My cherry trees are six feet or more in hight, without a limb. What can I do with my trees to secure my object? Will you or any of your correspondents answer?

NOVICE.

CAMPTONVILLE, March 16th.



We will: your trees have not been properly cultivated, however "reliable" the nurserymen may be of whom you purchased. They have been grown too close together in the nursery row, and were not cut back at the end of the first year's

growth, down to the point at which you desire the trees to limb out. We have always advocated and practiced the growing of nursery trees far more open, or at a greater distance apart in the nursery row, than is generally practiced, purposely to effect the object desired by our correspondent, that they may throw out their first set of limbs low down, which they will never do when planted closely. You can hardly hope for anything more than here and there a straggling limb, below the limbs that are now a year old, unless you cut the whole tree down to that point. Your cherry trees, even if set in open ground, will, in all probability, make another straight shoot upward, from near the present top, perhaps two or three limbs; but nothing like the desired low, bushy head will you get, without at once cutting it back to within four or five buds of where you would like to form the head, or top. You may hope they will grow to please you without this apparently knife-mutilation, but you will hope in vain.

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EDITOR CULTURIST:—I have been trying to find some preventive for borers, to keep them from injuring my trees. Thus far, I have not been successful. Last year I lost quite a number of fine-looking apple trees, and it seems almost impossible, even with constant watching, to prevent these pests from injuring trees the first year or two after they are set out. The borers here attack all kinds of trees—apples, peaches, cherries, pears seem alike subject to their ravages. I have been informed that “Oil Soap,” or “Oil of Soap” can be used as a preventive. I am not acquainted with this article. It is said that it has something of the consistency of paint, and that, by applying it to the bark of trees once in two or three weeks, it prevents the flies laying their eggs, and thus, without injury to the tree, saves them from these great pests. As I suppose you are anxious to get all the information possible, about borers and preventives for them, I do not hesitate to trouble you with these inquiries. It is my opinion that an ounce of prevention is better than a pound of cure, if a preventive can be found. Will you please inform me if such an article can be found, and whether or not it can be used to advantage? Truly yours,

IOWA HILL, March 27th.

C. B. TOWLE.

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Oil of soap is a liquid compound, obtainable of almost any of our chemists; and is principally used for extracting grease or oils from cloth garments. To the bark of trees it would prove a stimulant, without being an injury; whilst the odor of the essential oils it contains, would doubtless be offensive to insects, and perhaps to a degree that would make it a preventive against the borer. Grease or oil is injurious as an application directly to the bark of trees; but the oil of soap, as compounded, is more like strong soap-suds in its effect upon trees, and always beneficial. It is often applied to rose bushes, grape vines, etc., as a preventive of the attacks of the aphids. It can be procured in this city at two dollars and fifty cents a gallon. Coal tar, obtainable at the gas works, is a sure preventive, but it should always be applied to cloth or coarse paper wrapped around the tree, and never to the bark direct; but,

as this application can only be partial, or to the main trunk of the tree, it is not as available as the oil of soap, the application of which being directly to the bark, can be, with a suitable brush, extended quite into or among the limbs.

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EDITOR CULTURIST:—Can you inform me where I can get a few dozen eggs of the Bolten Gray, Poland, or Black Spanish breed of fowls. J. M.

COLUMBIA, March 25th.

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We cannot tell you. Will some one of our readers, possessed of the desired information, remit the same to us, with price per dozen for eggs. It may be a favor to all parties.

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EDITOR CULTURIST:—My gardener has no difficulty in raising for me, fine, large asparagus, beautifully blanched or whitened; but it is so tough and stringy as to be almost unfit to be eaten—only an inch or two of the top is tender and fit for use. Is there any remedy? INQUIRER.

SAN FRANCISCO, March 26th.

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The difficulty lies simply in the fact that your gardener will persist in blanching, or whitening it, which is only another name for, and the only certain way of toughening it. Let the shoots grow from the stool of the plant—which should be two inches under the surface—entirely out of the ground, instead of through six or eight inches of sand, soil or mulch, and when five or six inches high, cut it one inch only below the surface of the ground, and it will be rich, succulent and tender; but, in color, green, instead of white. The effect of earthing up asparagus, is just the opposite of that upon celery. Strange, perhaps, but true. This plant, where there are beds of it, ought to have plenty of old rich manure drawn upon it in autumn, and spread to the depth of two or three inches, to be raked off in the spring. In setting out beds, it is recommended that the distance between the rows should be at least eighteen or twenty inches, and the plants from fifteen to twenty inches in the row. When the horse cultivator is used to do the work, the rows may be made at least thirty inches apart; where the plants are too close, they must necessarily be small, as they cannot develop themselves. The *Gardeners' Monthly* does not esteem salt of as much benefit to this plant as many do.

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A correspondent asks what we know about the Cassabar melon. This melon is sometimes called the Persian Cantaloupe, as it belongs to the Cantaloupe family. F. A. Fleming, of Curwensville, Pa., states that its flesh is fine grained, tender and juicy, and of a greenish color. It grows to a large size, being from sixteen inches to twenty in length, and is very productive. The writer states it is the best melon he has ever tried.

# Editor's Repository.

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**TO THE PATRONS OF THE CULTURIST AND THE PUBLIC GENERALLY.—J. B. Morse, heretofore traveling agent of the CULTURIST, having failed to transact business with the office in an honorable manner, notice is hereby given, that from and after this date, he is in no way connected with the magazine aforesaid, and all persons are cautioned against paying him any money on its account.**

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**CALIFORNIA STATE AGRICULTURAL SOCIETY.—**For the last four years, we have carefully watched the progress of this society, in its advancement from a state of half-starved embryo, to that of its present high and enviable condition, as a well managed and highly creditable state institution, or society. For five years we have attended its fairs annually, and we hesitate not to say, that, in our opinion, each succeeding annual fair, since 1855, has been an improvement—a decided success over the fair of the preceding year, down to the last, or 1859. The Atlantic states, the world abroad has witnessed in the annual progress of this society towards its present high position, something entirely unprecedented, even among much older, more populous, and far richer states and communities.

We see the society in 1856, having at its disposal the very creditable sum of about eight thousand dollars, as a premium fund, and for the necessary expenses of the society. The next year, the fund for the same purposes had doubled—the society having at its command, sixteen thousand dollars. This was something like progress in the right direction, if we can judge properly. In 1858, it had reached the very large sum—for a state as young as California—of twenty-eight thousand dollars. Every year the annual fair was a success over the last, and gaining in popularity as rapidly as in its funds for the society's uses; if not so, from whence comes this annually increasing fund, when but five thousand is received from the state in any one year? But what of the efforts of its officers, and the condition of the society for 1859? The best fair the state has ever seen—a decided improvement upon and over the previous ones, with forty-four thousand dollars at control. Such has been the annual condition of the society, as regards its finances available for the payment of premiums and expenses incident to its management. Does this look like going backward? Does it look like a falling off of interest in its future success? Does it look as though the society or organization had "ceased to meet the wants and wishes of the agriculturists of the state?" Was such an idea ever entertained, until after the annual meeting of the society in January? Had not every paper in the state, that had said anything on the subject, entirely endorsed what everybody had said, down to that time, of its entire success as an institution, even with its burden of mismanagement, along with a great deal of good management? Has not the fame of our last year's fair gone forth an oft-told story, world-wide? It has; no one can dispute it, nor did any one until, by a vote of the society in January, the fair for 1860 was very indiscreetly, perhaps, given again, or for two years in succession, to Sacramento. But because it was so voted, by a

large majority of the members present at the meeting, must it follow that an organization, unequalled in its former successes by any other of its kind in the Union, shall be abandoned? Will it be to the credit of California that, with an annually increasing and truly princely fund, the California State Agricultural Society shall hereafter cease to exist? We think it should be, and believe it will be, still nourished and cherished by every well-wisher of the state's prosperity.

The legislature is asked to repeal the law, donating five thousand dollars annually to the society. We hope it will not be repealed; and, trusting in the good sense of those who control its destiny—the five thousand dollars annual appropriation—believe it will not be repealed. As to the formation of district societies throughout the state, we shall everywhere favor them to the extent of our ability, and would gladly petition the legislature in aid of such societies; but we cannot see the propriety of coupling with such a movement, a desire or an attempt to annihilate our state society, than which, a more successful or creditable one, not one of the older states, with a population no greater than ours, can show. The organization, even as at present managed, with hardly a precedent as a guide, applicable to our condition of soils, climates, and other peculiarities of country, is highly creditable to the agricultural, mechanical, and general industrial interests of the whole state, and should be perpetuated.

**DISTRICT AGRICULTURAL SOCIETIES.**—The movements recently in progress for the formation of a District Agricultural Society, embracing the counties bordering on the bay of San Francisco, has received an additional impulse, amounting to a perfect organization, at an adjourned meeting of the friends of the movement, held at San Jose, on the 21st ult. We see, in this evidently increasing desire to augment the number of agricultural societies, an omen of great good to the industrial interests of the state. We have a state society, whose annual exhibitions or fairs have always been a credit to the state; a considerable number of county societies, all of them, we believe, in a highly prosperous condition; the California horticultural society, distinct from the state agricultural society, whose annual proceedings and reports have always been sought with avidity by pomologists everywhere; and now the necessities of the agriculturists call for yet other societies that shall embrace a union of comparatively local interests, bringing the products of contiguous counties into juxtaposition with less difficulty and cost, than is necessarily attendant upon an annual visitation at the state fair, particularly when held in the more remote parts of the state, or even when fixed to any one locality permanently.

In some of the districts, the annual district fairs will be quite equal to what the state fair would be if held there; and it seems better that it should be, than that the state fair be made to dwindle down to a mere second or third rate institution, by forcing it into localities, distant or inaccessible to the masses of our citizens. From the well known character of the men who have taken the matter of the San Francisco Bay District Society in hand, we predict a decided success. We give in the following the proceedings of the San Jose meeting, which we copy from the *Alta California*:

The adjourned meeting of the San Francisco Bay District Agricultural Society met, pursuant to adjournment, at San Jose, March 21st. President Wm. Daniels in the chair.

The committee appointed on credentials reported the following named persons, as duly accredited delegates to the convention:

**Alameda.**—Dr. H. Haile, A. H. Myers, R. Blacow, A. W. Harris, James Shinn, H. C. Smith, John Lewelling, E. L. Beard, F. F. Fargo, H. Linden.

**Contra Costa.**—Geo. P. Loucks, H. H. Fassett, Nathaniel Jones, C. J. Cutler, W. Bradford, John M. Jones, J. M. Allen, John J. O'Brien, W. J. Callwell, L. M. Brown.

**Santa Clara.**—W. Daniels, Cary Peebles, J. F. Kennedy, H. C. Melone, Colman Younger, J. Lewis, H. D. McCobb, H. L. Winchels, James C. Cobb, C. B. Younger.

**Santa Cruz.**—Judge Blackburn.

**Monterey.**—Alfred Edmunton.

**San Mateo.**—John Cumming.

**San Francisco.**—Samuel Brannan, J. W. Walker, — O'Donnell, W. Green, Michael Hayes, J. J. Haley, R. B. Woodward, J. L. Sanford, J. L. Burtis, John Center.



On motion, the delegates present were authorized to cast the entire ten votes of their respective counties.

The minutes of the former meeting were read and approved.

On motion of Mr. Peebles, John Center, of San Francisco, and G. P. Loucks, of Contra Costa, were elected Vice Presidents, and C. B. Younger, Assistant Secretary.

The following communications from A. H. Myers, President of the Alameda society, and Dr. William Rabe, Vice President of the state society, were received, read, and placed on file :

ALAMEDA, March 20th, 1860.

*President of the San Francisco Bay District Agricultural Convention.*

DEAR SIR :—Owing to the claims of pressing business, which can neither be postponed nor confided to other hands, it is out of my power to be present at our adjourned meeting, in your city, to-morrow. You, sir, and the gentlemen associated with you in the convention, need not be informed that this deprivation is not only a source of regret, but a great self-denial to me. May I not ask, however, that my efforts in the *past*, in behalf of this cause, may partially atone for this apparent neglect, and be accepted as a guarantee of my future interest in its advancement.

When an organization is effected, you will please enroll my name as a member, and I will, in due time, remit the fee to the treasurer. Having implicit confidence in the ability of the committee on constitution and by-laws, I have no report or suggestions to make. You will learn, through the delegates of Alameda county, that our society has fixed upon the fifth of June, as the time for the commencement of our "annual fair and cattle show," to a participation in which you are invited.

You will allow me to suggest the appointment of a committee of one from each county embraced in our district, the duty of which shall be to visit Sacramento city, and obtain from the legislature, such action as may be deemed necessary and advisable. As the convention will be composed of gentlemen whose hearts and minds are devoted to, and deeply imbued with the spirit and teachings of the noble cause in which we are engaged, I repose the utmost confidence in its action, believing it will be judicious, liberal, just and honest. With assurance of an unabated devotion to the development of home interests, and home industry, in which glorious cause it has been my privilege with you to be an humble worker, and with ardent and sincere wishes that signal success may crown our present effort, I am, dear sir, as ever,

Respectfully yours, A. H. MYERS.

*To William Daniels, Esq.*

SAN FRANCISCO, March 19th, 1860.

*To the Agricultural Convention, San Jose.*

GENTLEMEN OF THE CONVENTION :—As one of the Vice Presidents of the State Agricultural Society, and especially from one of the districts which will be represented in your convention, I would most likely have received an invitation, if present, to participate in your deliberations.

My other pressing business relations prevent my co-operation with your body, but my best wishes are with your movement. After all, the agricultural wealth of this state must be paramount to that of the mining wealth, and exertions ought to be made in every quarter, to raise agriculture and its pursuit in its proper scale of the wealth of this state.

It has happened, as some think, unfortunately, that the late agricultural convention resulted in the choice of Sacramento for the next annual fair. I think it was fortunate for the agricultural interests. It has called forth energetic action. Men who previously let matters go by default, have waked up, and are now "up and doing." As one of the officers of the state society—and I believe I express the feelings of the other members of the board—I rejoice in this omen, and I assure you the state society does so with me. But I hope that you will not tarnish your movement by being a party to the destruction of the state society. If a wrong has been done—and I am not prepared to deny it—the present officers had nothing to do with it; and, I am free to say, neither had the old board.

The fault was in the original conception of a popular convention. All this may be amended, as it should be; and, if you will support the present board, it can be. It is easy to pull down, but hard to rebuild; and I have no right to believe that the convention, composed, as it undoubtedly

will be, of men who have nothing else at heart than the welfare of their constituents, and by those means, that if the whole state will devise anything else than harmony, and suggest and carry out such plans as will tend to reconcile and to mend all the wrongs by doing better the next time. Now, will you cease planting because the crops failed one season? •You'll try again; and these rules and maxims apply as well to public as private enterprise. I am satisfied we'll come out "all right in the end," if we don't do one wrong to prevent another wrong. Let us all work for one great end—the advancement of civilization, to which agriculture is the great stepping-stone. I need not excuse myself for thus writing to you. I have been many years a planter—introduced the subsoil plow in South Carolina, my former home, and look upon the pursuit of farming as the sole, positive, and sure road to health, wealth and wisdom. Yours, fraternally,

WM. RABE, *Vice President of the State Agricultural Society.*

On motion of Mr. Jones, all persons present interested in the objects of the meeting, were invited to participate in the proceedings, except the right of voting.

The committee appointed at the last meeting to revise and report a constitution, reported the following:

*Mr. President and Members of the Convention:*

The undersigned having been appointed a committee to draft a constitution and by-laws, in order to organize a district agricultural society, for the San Francisco bay district, beg leave to report that they have had the matter under advisement—that they have drawn up a constitution and some by-laws, which they herewith submit to the convention, and recommend that the same be received, and the committee discharged. Respectfully.

|                 |              |
|-----------------|--------------|
| WM. DANIELS,    | } Committee. |
| WM. BLACKBURN,  |              |
| JOHN CUMMING,   |              |
| GEO. P. LOUCKS, |              |

\* [The constitution and by-laws are too voluminous for our pages. ED.]

The constitution, with some modifications, was finally adopted by a unanimous vote.

#### LOCATION OF THE FIRST FAIR.

The delegation retired and elected a delegate from each county, whose duty it was to fix the time and place of the next fair, in accordance with article fifth, who finally unanimously agreed upon San Francisco, and the same to commence on the first Thursday of October, and continue five days, exclusive of Sundays.

On motion, the convention proceeded to the election of officers, with the following result:

President, Samuel Brannan: Vice Presidents, Wm. Green and W. Wadsworth: Secretary, F. F. Fargo: Treasurer, Charles R. Bond: Directors, John Center, Michael Hayes, and F. L. A. Pioche.

#### COUNTY VICE PRESIDENTS.

Santa Clara, Wm. Reynolds: Contra Costa, Nathaniel Jones: Alameda, John Lowelling: San Mateo, John Cumming: San Francisco, J. S. Burtis: Santa Cruz, W. N. Slocum: Monterey, Geo. W. Crane.

On motion, a committee, consisting of Wm. Daniels, A. A. Cohen, J. W. Osborn, John Cumming, John Center, and G. P. Loucks, was appointed to visit Sacramento and urge the passage of the bill introduced by Senator Redman, or some similar one, providing for repealing the charter of our state society, so far as the appropriation of \$5,000 dollars is concerned; and also providing for the distribution of the same, or other sums, to the various district societies.

On motion, the board of managers were authorized to publish five thousand copies of the constitution and by-laws, in pamphlet form, for distribution to members.

On motion, the secretary and treasurer were authorized to purchase such books and stationery as may be required in the discharge of their duties.

On motion, the secretary was instructed to notify the officers elect of their election.

On motion, adjourned *sine die*.





working cattle, will easily make a distance one-fourth greater in a day than the heavier Durhams. We heartily endorse the Durhams as superior dairy stock, upon a plenty of nutritious, succulent food, obtained with ease and comfort, but not otherwise. Our own experience would indicate that they are a pampered breed, and will meet the expectation of the California breeder, only under circumstances highly favorable to a luxurious accommodation of climate, food and treatment. Not so with the Devons; their hardihood, in all respects, is proverbial. We hope some one may be induced to secure, from the the stock about to be sold, enough of male and *female* of the full blooded, to perpetuate the breed amongst us in its purity; for, however valuable it may prove in its cross upon our native herds, there cannot be a doubt of its value in its purity, as a stock admirably adapted to the conditions of climate and forage that obtain throughout a very large portion of California. We would direct the attention of stock-growers to our advertisement of the sale referred to.

**BEES FOR CALIFORNIA.**—The shipment of bees for California and Oregon has been a brisk business for a few months past. One hundred dollars a stock—the price paid—for good ones, has sent out a host of speculators. Our valley of the Mohawk has furnished a goodly share. From between Utica and Schenectady there have been sent off one thousand hives. M. Quinby & Co., St Johnsville, furnished five hundred and twenty-two. The greatest number shipped at any one time, was the fifth of January. A loss of from fifty to eighty per cent. attended the first attempts, mostly for want of room and ventilation in the hot climate they passed through. A sheet of wire cloth was simply tacked over the bottom of the hive to confine the bees, and resulted in destroying the most of them by heat and suffocation. An approved and more successful mode now, is to make a box or cage of wire cloth large enough to hold nearly all the swarm, and put it over the bottom or top of the hive. When the interior of the hive becomes too warm, most of the bees will leave and come out into this box, where they are much more comfortable, as the air can freely circulate through it. They are placed on the upper deck of the ship, and at the same time kept as much as possible from the light. It would seem that an effort is being made to extend this trade into other quarters. Mr. Q., we understand, has filled an order recently for some to go to South America.—*Exchange*.

**MICHIGAN STATE AGRICULTURAL SOCIETY.**—Amongst the provisions of this society for the future, those that relate to fostering the offering of special premiums by individuals is worthy of attention. The very handsome special premium, offered by Mr. Thomas Williams for a show of the colts of his horse Stone Plover, was the means of adding a very attractive feature to the annual exhibition of 1859. Mr. Williams deposited the premium of fifty dollars with the treasurer of the society, and it was paid to A. D. Power, of Farmington, on the presentation of his name with the report of the decision. We hope that we shall have some more premiums of a like kind. The following resolution relative to holding the next state fair was adopted:

*Resolved:* That this society will hold its next fair at such place in this state as shall make the business committee such offers, on or before the first day of July next for its accommodation, as shall be deemed by them most advantageous for the society, unless a subscription satisfactory in its character to the business committee for at least one thousand dollars shall be furnished to them on or before the fifteenth day of June next, by the citizens of Detroit.

It will be seen by the proceedings, that a class of premiums has been instituted for walking horses. This is something new, and will prove one of the most useful tests of the qualities of horses yet adopted.

[This plan of making the place, town or city at which the fair is held, contribute liberally to the expenses necessarily attendant upon such exhibitions, is a feature that might be imitated with advantage in the annual holding of the fair of the California state, as well as district agricultural societies.—ED.]

**STRAWBERRIES.**—Large dishes of ripe strawberries are presented to view in the windows of several of the dining saloons of our city at this date—March 24th.

**LATE KEEPING APPLES.**—Will some one or more of our readers, or any California fruit-grower, forward to us specimens of California grown apples, of the following varieties: the Swaar, Spitzenberg and Seeknofurther, one specimen—if no more—of each variety. We wish to place them side by side with the same varieties grown in Oregon. Now, can we not, by a fair and square trial, satisfy the Oregonians that California can produce these varieties that will outkeep their own? Who will try it?

**PERSONAL.**—On my departure from California, I wish, through your journal, to express the thanks I feel for the uniform kindness I have received from the agriculturists of this state. Through their courtesy I have, during two years' observation, gained an intimate knowledge of the peculiarities of vegetable growth in this climate, which I expect to use for the interests of this country. I have not been backward in giving the widest circulation to the facts I have collected, and to the counsels which my observations suggested, for which purpose I have used your pages and the columns of the *Alta*. It is the only return I have had any opportunity to make for the warmth of heart and the open-handed liberality that I have found everywhere I have traveled in your state. I would especially leave a record of my obligations to the hospitalities of Oak Knoll and Fernside.

To one and all I bid a kind adieu, J. S. SILVER.

SAN FRANCISCO, March 19th, 1860.

(ANTHRAX.)

**HOW TO TEST SILVER ORE.**—The *Trinity Journal* says: As there is no telling how soon rich silver mines may be found in this region, we publish for the benefit of prospectors the process by which the presence of silver may be determined: Pound a small piece of rock, supposed to contain the metal, as fine as possible; then place it on a shovel or anything handy, and hold it over a slow fire, to burn away sulphur or arsenic, which are generally mixed with the ores of silver; then take a cup, or any glass or earthen vessel, into which pour a small quantity of nitric acid (aqua fortis) in which put about a teaspoonful of the powdered ore, which boil in the acid for a minute or two; then take some common salt dissolved in water, in another vessel; pour a small quantity of the salt and water into the acid; if it turns white and looks milky, there is silver in the ore. The above is a cheap, convenient and certain test for silver.

**WIND POWER.**—We would say to those about to erect wind wheels, for propulsion of machinery for straw-cutting, wood-sawing, threshing, grain-grinding or pumping, that before they decide upon the use of any particular wheel, to examine carefully into the merits of Dickerson's patent, self-regulating wind wheel, as advertised in our pages.

**ADVERTISEMENTS.**—Our patrons will perceive that we have dropped all advertisements that were not positively ordered continued. We shall adopt this course invariably. The circulation of the *CULTURIST* has now reached a point to be counted only by thousands, and as our advertising pages are wholly an addenda to our forty-eight pages (monthly) of reading matter, the mere cost of paper alone, necessary for our advertising, becomes a matter of no little consequence to our pocket.

**A BRIGHT FUTURE.**—No country ever had so bright a future opening before it as beams on California to-day. She has mines which enable her to export fifty or sixty millions of gold every year. Independent of the exhaustless treasures contained in these mines, and the personal investments therein; and, besides her mines of silver, mercury, coal and iron, her population of six hundred thousand own property which has an assessed value of more than one hundred and thirty millions of dollars. Within her borders, are seventy-six millions acres of tillable and grazing lands—all of it probably fit for cultivation, and millions of acres of the finest timbered land in the world. Her soils produce more grain to the acre, and larger fruits and vegetables, with less expense—the difference in wages considered—and in a shorter time, than that of any other state in the Union.

To crown these material blessings, her climate is balmy and wholesome, and so mild that roses bloom in open air of winter, and strawberries ripen during the same season. Her skies of seldom clouded, deepest blue, bend over every variety of grand and lovely landscape. The scenery of Wales and Switzerland is equaled by that of the Sierra Nevada; the rolling foot-hills, with their orchard-like groves of oak and spring garments of many-hued blossoms, have a beauty of their own; while the level valley at their bases, stretching for hundreds of verdurous miles north and south, and dashing its waves of grains and grasses against the far purple wall of the coast Range—who shall describe its beauty, or that of the sea coast and bays lying “glassed in their own loveliness” far beyond?—*Hydraulic Press.*

**ALAMEDA COUNTY AGRICULTURAL SOCIETY.**—The next semi-annual fair and cattle show of this society will be held at Oakland, Tuesday the fifth of June next. There are good reasons why this fair will be likely to possess more than ordinary interest. It will be just the time for a most beautiful display of all or most of the earlier fruits of the season. A grand feature of the fair will be the most perfect trial of reaping and mowing machines ever had upon the Pacific coast; and, in other respect which we have not space to devote to a particularization of, it will possess more of interest than would be likely to obtain if deferred to a later season. Alameda always has, can again, and will do herself credit in her industrial displays.

**RUMORED CHANGES—EDITOR CULTURIST:**—Rumor has reached us of an intended change in the editorial management of the CULTURIST. It appears to be one of the current evils of California life, that we can have no landmarks or guide-posts of long standing; that no sooner than a friend's countenance becomes familiar, he is off for New York or Washoe. Has the CULTURIST the silver fever also? Is there not gold enough in the subscription list to make the editorial chair and conscience easy? Is there not enough of satisfaction appreciated in the pleasure given your ten thousand readers? As one of the said ten thousand, I rebel; we have just begun to be used to the CULTURIST's face, and fancy we are appreciating its pages, and think when you are not right, you at least, mean right, which is the great point after all. So much for a bachelor editor; we thought you married and settled, but it appears the only settlement is to be the CULTURIST's accounts and a transfer, and that we, your subscribers, are to be victimized into some new ideas and a fresh confidence. The first is well enough, we want them; the last is only by slow degrees attainable, and we would much prefer the continuance of the present arrangement; and take leave to say to my brother farmers, if your subscription list is short, that the best five dollar investment they can make is in a California agricultural journal, where we can cross-fire at each other on all points of our culture; where we can file up our ideas and rasp off our prejudices, in a few years producing, not only a better tilth in our farms, but in our habits and opinions. Our tillage and our horticulture is yet in its infancy, and constant changes in our agricultural journals is not a good method to advance its interests, either round the bay or

UP COUNTRY.

[When we conclude to abandon as good a thing as the CULTURIST now is—we refer to its condition pecuniarily—we will give our patrons a timely notice. There is to be no stop to the CULTURIST. It is only whether we continue to thrust our views and opinions of the science of agriculture, as adapted to California, to the notice of its patrons, or whether we transfer the task to abler hands.—ED.]

**OFFICE OF CALIFORNIA HORTICULTURAL SOCIETY.**—The next regular annual meeting of this society will be holden at the office of the CALIFORNIA CULTURIST, in the city of San Francisco, on the eleventh day of April. Business of importance will come before the body, in the transaction of which, the presence and counsel of all its members are earnestly solicited.

W. WADSWORTH,  
Secretary.

SAN FRANCISCO, March 30th, 1860.

**METEOROLOGICAL TABLE,**

For Sacramento, California; being an abstract of Observations made during the month ending February 30th, 1860; Lat. 38°, 34', 41'', N.; Long. 121°, 27', 44'', W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of 32° Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By THOS. M. LOGAN, M. D.

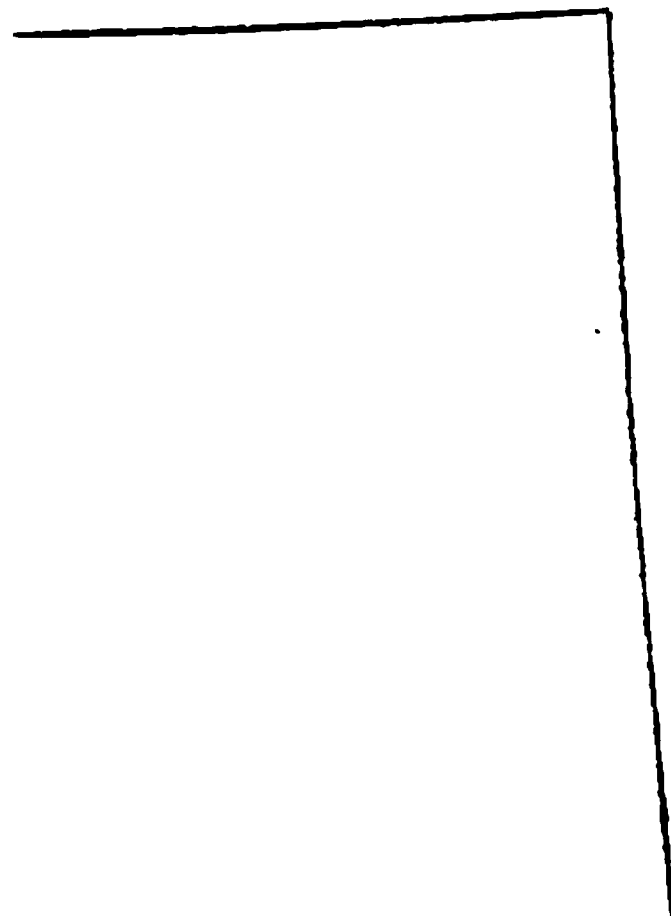
**Thermometrograph.**

|                                          | Deg   |                                           | Deg   |
|------------------------------------------|-------|-------------------------------------------|-------|
| Highest Reading by day on the 4th .....  | 69.00 | Mean of all Highest Readings by day.....  | 55.75 |
| Lowest Reading by night on the 22d ..... | 32.00 | Mean of all lowest readings by night..... | 32.50 |
| Range of Temperature during month.....   | 34.00 | Mean daily range of Temperature during mo | 16.41 |

REMARKS.—The indications of an early spring, alluded to in our remarks last month, have proved to have been well founded by the result. Not only in our immediate locality, but, it would seem from late accounts, all over the North American continent, the severe winter which set in so much earlier than usual, is entirely broken up, and the weather of late has been mild and genial every where. Our plains are now verdant with the livery of spring, while the peach and other fruit trees are opening their blossoms, and most of the forest trees indicate frondescence. But one cold spell occurred about the 21st—23d, to interrupt the progress of vegetation, which was followed by the most remarkably pleasant weather ever experienced at this season. On the 24th, the barometer, which has ranged generally very high during the whole month, attained at twelve, M., the extraordinary maximum of 30.652 inches—being thirty-three one thousandths of an inch higher than at any other reading ever recorded in our register. As the temperature at the surface of the earth stood as high as fifty degrees during this remarkable stage of the atmospheric pressure, we infer that the superincumbent stratum of air was much colder.











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T H E

CALIFORNIA CULTURIST.

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M A Y , 1 8 6 0 .

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USEFULNESS OF FAIRS.

BY WILSON FLINT.

**H**OWEVER much industrial fairs conduce to the thrift and prosperity of communities where they are held, benefiting alike the landlord, tradesman and whomsoever, caters to the pleasures and necessities of the unusual throngs gathered for the occasion ; however much they may contribute to the gratification and business success of contributors, who have obtained pre-eminence in the departments to which they were competitors, whether in the fine arts, mechanism, horticulture, cereal agriculture, or stock-breeding, in all these, when viewed as matters of personal aggrandizement, what they accomplish sinks to mere individuality, and fails to attain anything more than to illustrate by invidious distinction, that A excels his neighbor B in some one or another industrial manipulation. In all industrial exhibitions, "Excelsior" is the talismanic word which becomes their life and soul ; it ameliorates the artisan's toil, stimulating the weary arm to prodigies of skillful handiwork ; the hope too, of commendation brightens the midnight lamp, where chemistry dissolves crude material matter, exposing to mankind the solids and fluids of earth's organism ; the love of approbation also inspires the patient hand of woman, and flushes the cheek of beauty, as her delicate fingers weave into form the chaste materials that are to adorn her person or embellish home ; for this the farmer watches the bursting blossom to yellow harvest, that he may bring

"First fruits the green ear and the yellow sheaf."

Thus with exhibitors, the hope to excel all competitors is a far greater stimulus than the desire to obtain pecuniary prizes ; because, in most instances, the cost of preparing articles for exhibition, far exceeds any remuneration obtained ; and it is

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well that it is so, for were it otherwise, fairs would soon go out of favor, for the simple reason that they ceased to be attractive. Much as industrial exhibitions accomplish to stimulate production among rival mechanics or cotemporary agriculturists, they are of far greater significance as the medium of collecting statistics illustrating and making record of the annual progress of a people. In a country like California, where the inhabitants have been thrown together from all quarters of the globe, strangers to each other, of restless habit and feverish temperament, scattered over a widely extended territory, or located in isolated communities, and favored by a climate which enables them to grow almost every herb or plant, conducing to the uses of mankind, it becomes a matter of first importance, that the capabilities of localities so varied in soil and climate, should be more generally brought to public notice; and in no way can this be so effectually accomplished as by each locality having their products largely represented at all the great fairs for exhibition.

The constant and increasing influx of strangers, seeking domicil and homes in our state, are attracted to the fairs; and while comparing the products of various portions of our country, they are enabled, to some extent, to judge of the locality best suited to the kind of husbandry they are intending to pursue. That they so decide may be shown by mentioning a few localities which have, from an early day, been largely represented in all the fairs that have been held in the state; in such districts, the lands being in quick demand, and running up to fabulous prices; while those not brought to the notice of purchasers in this manner, have been neglected, and are difficult to be disposed of. Passing by many places which have been contributors to the fairs—such as San Jose, Oakland and Sacramento—where lands are in brisk demand, a glance at Napa county may serve for purposes of illustration of the benefits conferred upon a whole community by an individual enterprise. At an early day, the proprietor of Oak Knoll farm—a large tract of variable land near the center of the valley on the left side—commenced planting fruit trees and vines. Napa valley then was sparsely populated, and lands were held at nominal prices, and horticulture an untried experiment in California; yet the proprietor of Oak Knoll, possessed of a foresight, which had been sharpened by contact with men and the mutations of fortune on nearly every theater of action in all climes, took a leading part in the organization of the various fairs which have been held from time to time in the state, contributing liberally in material aid, and always bringing for exhibition a profusion of the produce of his farm. In this manner, Oak Knoll has borne a prominent place in the newspaper reports of the day, its annual exhibits of Pomona's luscious gifts, the irrefutable evidence of the fatness of the land, compelling strangers visiting our fairs for the first time to exclaim, that Napa county must be a most desirable country to settle in. Hence, would follow a visit to the locality and subsequent purchase of land.

Not only in California has Napa county become proverbial for its productiveness, but the awards of committees, embodied in the proceedings of the annual show, have found their way to the Atlantic states and Europe; while the poetic pen of Bayard Taylor, recording the hospitality of the proprietor, has faintly mapped the mazes of

avenues, flanked on either side with fruit-bearing squadrons in emerald uniforms, and spangled with luscious drops of golden hue and carmine tint, stretching away their extended lines so far that the eye wearies with distance. All these have found audience wherever the English language has record. That the proprietor, by these means of giving notoriety to his section, has greatly enhanced the value of his estate, needs no further argument; and the benefits of his enterprise to Napa county at large, may be estimated by millions. That he will cease to give his countenance to great centralizing fairs in the future, is to doubt his sagacity, or to admit that he is prepared for a decadence.

All large landed proprietors have a deep interest in seeing that the community, where their lands are situated, send a liberal representation of their industry for exhibition. In no more effectual manner can they attract purchasers, and bring their domains into advantageous disposal. But it is the small proprietor, the family living in a sparsely settled district, that has the most vital interest in being represented at the fair, and they should lose no opportunity to display the evidences of the fertility and productiveness of their locality, so as to attract neighborhood settlements. In this manner alone will they be able to provide educational facilities for their children, and obtain the conveniences and pleasures of social life. Of this, an example may be cited. At the last state fair, a gentleman living several miles from Sacramento, on the great plain towards Stockton, made an exhibit of foreign grapes of so superior a character, as to attract general attention: the result is, that his neighborhood long neglected, is now sought for by parties contemplating vineyard enterprises. It should not be forgotten that there are a very large number of persons engaged in mining pursuits throughout the mining districts; in due time many of these, having acquired the means, are on the lookout for a locality to buy a farm. Now, premising that a great fair was to be held at Stockton, Sacramento or Marysville, many of this class of persons would be certain to visit it, on account of proximity, as well as to acquire information with regard to their contemplated purchase of a homestead; and their predilections would naturally be given to those districts making the most favorable exhibit at the fair. Hence, if a locality, county or section of the state, were unrepresented, or only meagerly so, such locality would be overlooked—being out of the mind of the purchaser, and all interested in such community would be sufferers by their own neglect.

Impressed with these views, the writer desires to address a few words to those gentlemen living in the adjacent counties to San Francisco, who felt aggrieved at the action of the majority of the members of the State Agricultural Society in locating the fair at Sacramento, as it is alleged in violation of the constitution of the society. The writer, with many other residents of Sacramento, having the best interests of the society at heart, was in favor of holding the ensuing fair at San Francisco, believing that, until other cities shall have sufficient accommodations for visitors, only two points could be considered—Sacramento and San Francisco, both favorable to centralization. The indifference of the representatives of San Francisco, stimulated an arbitrary majority to decide in favor of Sacramento, it is charitable to believe,

more from motives of present personal self-interest, than a feeling of hostility to any other locality. The mode of locating the fair is an error of the system, by which popular clamor is able to over-ride politic consideration ; yet, this is a matter of future remedy, and it is hoped that, from no quarter, will the attempt be persisted in to destroy the State Agricultural Society, because there are defects in its organization. Localities which have heretofore contributed largely to the success of the society, may not again be represented, in which case there will be much detraction from the interest of the occasion ; but I submit, which will be the greatest sufferer, the agricultural society and the citizens where it is held, or the people of the districts unrepresented ? Surely it will not be characteristic of the enterprise of the great nursery-men of Santa Clara county, who have successfully obtained the first premiums at the state fairs, not again to have their names in the annual proceedings. It certainly will be a source of disaster to this leading interest of that county, should they not be fully represented at the approaching state fair, because it being held at a point which has become a great distributing mart for the sale of the desirable articles they are largely propagating, they can expect to effect sales only in proportion as they shall exhibit specimens of fruit, and the proprietor in person comes in contact with those proposing to plant orchards and vineyards.

As an individual member of the board of managers of the State Agricultural Society, the writer feels much gratified at the successful effort of the people of the bay districts, in organizing a district agricultural society, for the purpose of holding a great fair at San Francisco, in October. No better evidence can be adduced to prove that industrial fairs have become permanent institutions of the country, and a necessity of the people ; and it is hoped that state aid may be liberally given all district societies, without disturbing that already granted the State Agricultural Society. To repeal the donation, would be to retrograde—a step which it is hoped an enlightened policy of legislative action may hesitate in taking, and for which in none other of our sister states is there to be found a precedent. Having shown some of the indirect benefits conferred upon localities which have been patrons of the fairs, the writer will endeavor, in a future number, to more fully exemplify the direct advantages which accrue to communities and individuals who lend their aid to industrial exhibitions.

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“ DEVONSHIRE COWS.”—“ An old agricultural editor ” says, in reference to an article which appeared in our last volume upon Devonshire cows : “ The thoroughly got up short-horn has always outranked the lively Devon at all our great shows ; and, indeed, his earlier maturity and greater aptitude to take on fat should make him a favorite, whenever it is an object to turn corn into beef. But all this does not hinder our liking the hardier Devon, and, believing that the breed has been underrated by our Western stock growers ; we should like to see herds of each taken from the pasture *without grain*, unblanketed and unbrushed, and placed before a committee of *farmers*, who make butter and use oxen, and *butchers* who supply our city markets ! Blood and breed would show then.”—*Exchange*.

## OUR AGRICULTURAL PROSPECTS.

**C**ALIFORNIA never presented better promise for a year of unexampled agricultural and horticultural prosperity than now. The winter's rains have been abundant and timely in their coming, and no fears are now entertained of a lack of rain before the perfect growth and maturity of the cereals, that this year, like the preceding, occupy so wide a breadth of our arable lands. At the present time of our writing—April 12th—we notice very many fields of wheat and barley already in full head; and, owing to the abundance of the rains, the straw and heads are the largest and longest we have ever seen, and should no extraordinary atmospherical phenomenon occur between this and harvest time, an unprecedented yield will be the certain result. What the effect will be upon the grain market, and the pocket of the farmer, we leave—though not without misgivings—to the future to determine. Our farmers generally do not give attention as they should to a mixed husbandry; it is either all wheat, or all barley, or potatoes, or oats. The consequence is, that whenever the season proves particularly favorable to the growth of the cereals, for instance, which the majority of our farmers seem determined to make their staple product, the markets are glutted, and low prices rule.

From all parts of the state, the most cheering intelligence come to us of the horticultural and pomological promise of the approaching season. Never since the growing of fruit in California, has there been a season so entirely exempt from the blighting effects of spring frosts as the present. Fruit trees of every name and kind have set their fruit abundantly, and as the curculio—that great pest of all the smooth skinned fruits—is unknown in California, we see no reason why we may not expect the most abundant fruit yield ever visited upon us. Nothing but the most untimely frosts can, or will be likely to cut short the fullest realizations of the fruit culturist. Owing to the low prices of nursery trees, during the winter and season of planting them out, large additions to the general orchard stock have been made; not so apparent, however, in the lower valleys, as among the foot-hills and mountains of the Nevada range. A great many small orchards have been planted out, that in a year or two will begin to produce abundantly, and very many communities that have heretofore drawn their supplies of fruits from the valleys and older orchards of the state, will find their supply nearer home, and, we confidently believe, of a quality superior to much now produced that is called very fine fruit.

The extension of the vineyard interest, during the recent planting season, has exceeded greatly that of any previous year. It is not surprising that it should, when we witness the uniform success that has everywhere attended the introduction of the finer varieties of foreign grapes. As soon as it was discovered that European varieties of the grape were as easily and as successfully grown in the dry, warm climate of our state, as in the countries in which they were indigenous, without fear of mildew or blight in any form, that moment placed the matter of wine as among the future staple products of California. Such has been the enthusiasm upon the subject of vineyard-planting for the last six months, nothing like a supply of cuttings,

of certain varieties, could by any means be obtained. The present year, should it prove as propitious for the growth and perfection of the grapes most sought for, as wine-producing grapes, as past years have been, will only add to the present enthusiasm, and thousands of acres of yet newer vineyards will be the result. In every department of pomology there seems to be a brilliant future in prospect, if a full supply and a large surplus can produce such a future. That the high prices for fruits that have ranged during previous years can be maintained even for another season, we very much doubt. Some of the largest peach orchards in the state, that for two years past have borne no fruit, in consequence of late spring frosts, are this year giving promise of unprecedented yields. The same fact obtains in regard to the promise of all the lesser fruits and berries, and we shall expect the same from the grape in its season of setting.

And not only in the grain and fruit department of our agriculture do we see the promise of a future abundance, with its attendant comforts and good cheer, but in the animal world we see countless buds of promise. After a winter, or more properly, a season of unusual severity upon stock—more the fault of our own bad management than any fault of the season—we now find around us a spring and its prospects never before surpassed, either as regards the abundance of forage, or the increase of our herds. Cattle are looking uncommonly fine; and sheep were never doing better. The increase of animals in this country is, we are certain, without a parallel. In one instance, where a farmer has a flock of two hundred and twenty-eight ewes, every individual member has produced a lamb, and among them are twenty-three instances of twins; so that, to the present time, with the entire loss that has occurred, more than a hundred per cent. increase has been realized. California is literally a land of extremes in reference to her forage for animals; for five or six months of the year, nothing can exceed the gorgeousness of her green fields; then follows three or four months in which the fields present but little else than dried herbage and grasses, but furnishing exceedingly rich and nutritious feed; then comes the “winter of our discontent;” two or three months in which the bleaching rains, having nearly ruined the dried grasses, and but little of the new growth as yet started; animals unprovided for beyond the natural pastures, suffer for the time. But, with all the drawbacks incident to a want of a full knowledge of cause and effect, as connected with and governing our soils, climates and circumstances of animal and vegetable growth, no country on earth can possess more of the requisites of a future prosperity and greatness than California. Let the intelligent culturist study well the nature of his own local climates and soils, and then let his practices conform to its requirements, and abundance and cheering success will crown his efforts.

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**AGRICULTURAL CONENDRUM.**—What is the greatest planting yet recorded? The planting of the Pilgrims' feet on Plymouth Rock, in 1620. It has yielded a nation of thirty millions of people.











wash or blow off and expose the vine, and two or three inches of depth is enough. The whole vine should be covered. If the vine is as large as a man's arm, it will still readily lie down if it has been so treated from the first.

MR. LEWIS F. ALLEN's lecture on the *Apple* afforded some useful statistics. He complained that the census statistics embraced no information on the fruit crop; and yet, after careful computation, he was convinced that its aggregate value could not be less than \$26,000,000. Ten counties alone, in New York state, gave an average of \$200,000 each; Niagara county, only twenty-five miles square, yielded \$250,000 worth of fruit in 1859; Orleans, \$200,000; Wayne gave of green apples \$168,750 for exportation, and \$25,000 more for consumption, and \$35,000 in the dried state. The crop of all New York is about \$6,000,000; of New England, \$4,000,000; of Ohio, \$3,000,000; Pennsylvania and New Jersey, \$3,000,000; the North Western States, \$4,000,000; and the Southern States, \$6,000,000 in all.

MR. PARDEE's lecture on *Small Fruits* was replete with interest. The raspberry, he said, likes a moist, cool location. The northern slope of a hill, or the north side of a fence is best. The soil should be a gravelly loam, and be made very rich with rotted manure. The same treatment is appropriate to the gooseberry and currant, but not to the strawberry. To preserve raspberry stakes, he kyanizes them. A solution made of one pound of blue vitriol to twenty pounds of water, and used for soaking the points or whole length of your stakes, will make them last almost forever. The proper way to gather Lawton or New Rochelle berries for the family, is to jar the canes with a hammer, and catch the berries which fall. The others—and these are those sent to market—are not fit to eat. Never leave more than three canes in the hill, and have no suckers growing near the bush, if you want fruit. Cut back your canes as soon as they have borne their crop, pinch off the ends of the shoots in September, and again in spring; by which plan you will throw the strength of the vine into fruit-bearing on the laterals. The cranberry, on bog lands to which a dressing of sand has been added, should give fifty bushels per acre the first year after planting, one hundred and fifty bushels the next, and so on up to four hundred and fifty bushels as a maximum. He said that if compelled to choose one alone of the small fruits, the currant would be his favorite, as much of a strawberry man as he was.

For DR. GRANT's second lecture, MR. A. FULLER was substituted through the Doctor's illness. Mr. F. spoke of grapes, with regard to their pruning culture. Even with a choice grape, its quality and profit depended, in a great degree, upon the cultivation and pruning given to it. In summer, during the season of active growth, the liquid portions of the sap are exhaled almost as fast as they can be absorbed by the roots, and no great accumulation can take place in any one portion of the vine. But the leaves, once fallen, the roots continue to absorb their appropriate food from the soil, and thus the wood becomes quite filled with sap, which is kept in store for early spring use. It is, therefore, plain that we should prune our vine as soon as the leaves drop off, that the sap, which is afterwards absorbed, may all go toward the nutriment of the buds which remain.

MR. BARRY's first lecture on *Orchard Management*. Whether spring or fall



aration from the parent plant. If left on during winter the frost will ruin them. Such stalks as these may be set in nursery row the following spring, and budded the same season. Only two crops of shoots can be taken from the same stool, and a good dressing of manure is necessary to get even the second. Pears propagated on small, weak quince stalks are worthless. In budding or grafting quince stalks, it should always be done near the ground, so that the whole of the quince may be set under ground without being too deep. Root grafting, although still an open question among nurserymen, Mr. Barry believes to be, if properly performed, as good a mode for propagating the apple, and more especially all the strong growing sorts, as any other in use. It has been sadly abused, and thus been brought into disfavor with bunglers and their victims.

*Management of Young Trees.*—Trees are too closely planted as a general thing; three and a half feet between the rows, and three or four inches between the plants, is too little space to give either air, light, hardiness of constitution, spread of root, or strength of top. For apples, pears, or other trees which are to remain two years in the nursery row, the distance from tree to tree should never be less than eighteen inches for standards, and twenty-four inches for pyramids; and even at such distance the pruning-knife is to be freely used. Country people are too apt to value a nursery tree in proportion to its height, rather than its strength and proportions—a too common and fatal mistake. Cutting back should be freely practiced, and the leader, or main stem, should be pruned as well as the side branches, else one will get a tall and ill-proportioned tree. An enormous amount of money is annually lost to tree purchasers from rude and unskillful taking up. Trees are torn up by the roots, as if the trunk and branches were the one thing necessary, and the roots superfluous. The proper way is to open a trench on each side of the tree with a common spade, *keeping the edge towards the tree*, so as not to cross a root. These trenches should be far enough from the tree to avoid the main roots, and deep enough to go below all, except the tap-root, which may be cut off. This being done, the tree may be pulled up with its roots entire.

## THE RIGHT WAY TO PLANT TREES.

**W**ITH the present number, we propose to drop the discussion of the tap-root and planting of trees generally, until the approach of another planting season, when, if our correspondents choose, they can renew it. It is a matter of importance in a climate like ours, where our soils are subject to a six months' drying process from desicating winds and unobstructed solar heat, to ascertain whether trees are really doing right, when they send down their roots into the moist subsoil. We early assumed the position that, as our climates were entirely different from those to which we had been accustomed, a different system of management and tillage might be found expedient in the growing of trees.

One of the first requisites to success, in the Atlantic states, in the choice of ground

for an orchard is well drained subsoil; and to make their lands and keep them dry enough for orchard thrift, is a desideratum. Here, every possible plan, from irrigation to mulching and keeping the surface in fine tilth and free from weeds, is devised to maintain sufficient moisture to sustain the tree. Are there not directly opposite conditions here? Moisture, the *bane* of orchard culture at the East, is the *antidote* here. Deeply running roots may be entirely a superfluity in grounds with a subsoil so wet as to require artificial drainage; whilst in one naturally dry and porous, roots might penetrate to advantage, particularly if the theory of many be true, that all soils, to a considerable extent, suffer the leaching process, by which many of the soluble salts—valuable fertilizers—are carried down into the subsoil.

It is now nearly two years since we ventured to say, upon the subject of orchard planting, that, but for the *inconvenience* of planting out an orchard in the way we propose, we should prefer that the trees be grown from seeds, in the places in which they are to remain. We would, of course, bud or graft the trees, at or near the ground, in order to secure the varieties desired; but to obtain the best and most durable trees in a California soil and climate, we believe they should be grown with roots as perfect in all respects, as nature could grow them. To our proposition a few took exceptions, on the ground that trees grown in that manner would have tap-roots; that is, perpendicular roots penetrating the subsoil; and that such roots were detrimental to the growth and durability of the tree. We did not believe it then, and don't now; because we have not heard what we consider to be one good reason for supposing that such roots are injurious to trees.

Immediately after we had advanced the proposition, favoring the practice as peculiarly applicable to California climate and soils generally, as a singular coincidence, several of the horticultural journals of the Atlantic states, or their contributors, became involved in a like discussion of the same subject, and which has been unremittingly continued till now; and as showing that we are not alone on the side of allowing trees to send down their roots into such soils within their reach as they may elect, we follow our own present remarks, by an article upon the planting of trees, by a practical culturist, of South Carolina, believing that the climate of that section of the states will more nearly comport with our own, and practices there, be found in many respects, applicable here. We commend the *entire article* to the careful consideration of our readers.

### SHALLOW PLANTING OF TREES.

BY J. W. JONES, CHARLESTON, S. C.

**I**T is hardly possible, now-a-days, to take up a book on gardening without finding the author continually referring to nature and her mode of doing things as the *sine qua non* of perfection. She is held up as a mirror in which the gardener or amateur may see the true mode of performing his multifarious operations. She is held up as a perpetual example and guide, from whose dictum there is no appeal.

Her laws are like those of the Medes and Persians, unchangeable. The poor dame is dragged in by the ears to stand Godmother to all the bantlings that the busy brains of our numerous horticultural writers bring forth. Let it only be proved, or rather supposed, that such a process is founded upon a natural law, or upon what we conceive to be a natural law, and the writer imagines his argument to be irrefutable. But, before we "quote nature," we ought to be quite sure that we understand her; that we have read her book aright. I fear we know very little of her operations; we conjecture, or guess at a great deal, but the science of vegetable physiology is yet in its merest infancy, and the subject of vegetable nutrition, notwithstanding all the light that has been thrown upon it, is still in comparative darkness.

Lindley, in his great work, "The Theory of Horticulture," diffused much useful and valuable information through the gardening world; valuable, not so much from the theories he advanced being incontrovertible, but because he taught the gardener to think; he taught him the reason why any particular operation, done in a particular manner, would succeed better than when done in a contrary manner. He showed that gardening was not a mere mechanical pursuit, to be carried on by the aid of certain old laws and axioms as guides; but an art, and a fine art, whose chief operations were based upon, guided and assisted by a knowledge of certain laws of vegetable economy.

It has been the fashion then, these twenty years, little as we really know of the matter, to take what we call nature for our guide in gardening operations. We have drawn certain conclusions from our observations of her manner of doing things; but are we quite sure that our premises are right? We do not imagine that we have penetrated all nature's secrets; we see the results rather than the causes, and are apt, I fear, to confound the two. Nature and experience are sometimes in apparent conflict—our theory and our practice do not agree; we sometimes do things in gardening, and with success, too, that are quite contrary to the teachings of nature or theory. Chemists tell us that the substance of a plant can be reduced to certain well-known elements; and that the tree must derive such elements from the earth or air; and, therefore, it must be advantageous to place such substances as are naturally found in the body of a tree, within reach of its roots or leaves, as a supply of food. Yet what do we really know of those nice chemical changes and combinations continually going on in the body of a tree? We cannot explain how one plant extracts such starch or sugar, another resin, another opium, another indigo—all from out the same plot of ground. We can analyze the products, and separate such component part, and "find out what it is made of;" we may, in some cases, recombine, but we cannot, as nature does, draw from the soil or air for ourselves, that which a tree seems to do so easily and so surely. Will it ever come to pass, I wonder, that chemists shall be able, easily and cheaply, to extract *our* food directly from soil or air as plants do? If they can, as they profess, feed plants, why in the world cannot they feed us of the animal creation? Are we forever to be dependent upon the vegetable creation to prepare our food for us? I think the preparation, or rather formation of food directly from mother earth, may *sometime* be arrived at; but the



chemists have to find out a few more "elements" first. I have been led to these irrelevant remarks from reading an article in your last January number, on the shallow planting of trees, by William Bright, of Philadelphia. Superficially viewed, the reasons given for the practice of shallow planting are plausible enough. I have nothing to say against the greater part of his article: it is only his reasoning and conclusions I cannot agree with.

If I have not mistaken, Loudon was the first to advocate shallow planting, or rather planting on mounds—which is quite a different thing. If that colossal book-maker had had all the trees to pay for that died under the treatment he recommended, he would have had need of a dozen fortunes. Like your correspondent Mr. Bright, Loudon based his practice upon nature. Because, forsooth, Loudon had observed that all trees, of any size, appeared to stand on a mound, or slight elevation; *ergo*, all young trees ought to be stuck on a hillock already formed for them. It is a wonder that such an acute observer never discovered that the gradual thickening of the roots, and consequent upheaval of the soil, caused the mound-like appearance.

I well remember that a sort of *furor* existed in England for planting everything high and dry after Loudon's remarks appeared. To say nothing of young forest trees, even poor little plants in pots were elevated on miniature hillocks—much to their discomfort, no doubt. At the time of which I speak, a plantation of young forest trees resembled nothing so much as a collection of ant or mole hills with a stick thrust into the middle of each.

Mr. Bright's trees do well enough, I have no doubt; and so they ought, after such a world of trouble. To save the lives of his trees he necessarily mulches the mounds heavily for the first two years; *id est*, until the roots have descended to the general level of the soil, and have become independent of the mounds. I must confess I cannot see why they should not have been planted on the ground level in the first instance, as being, after all, the more natural position of the tree.

Mr. Bright is not satisfied with nature in one respect; for he does not like her mode of arranging the roots of trees; that is, so far as to their taking a downward direction. Mr. B. seemed to expect that if he once places the roots in a horizontal position, they must continue to extend in that direction; though every-day experience must have proved to him the contrary. All trees, except perhaps when growing in very wet soil, naturally form perpendicular, as well as horizontal roots; and, if the former be cut off will try and remedy the evil. It is not to be supposed that trees form tap-roots to their own prejudice. It is to be supposed that these roots descend down deeply into the earth for some special purpose. As a rule, it may, I think, be safely stated that tap-roots are essential to vigorous growth and durability of a tree. Moisture has a great deal to do with the direction of roots. If we could measure the quantity of water evaporated from the leaves of a large tree in the course of a single day, we should be better able to appreciate the value of the tap-roots.

In an uncongenial soil, to plant trees on mounds with the expectation of thereby permanently correcting the evil is evidently fallacious, for the roots must eventually

extend into, and be entirely dependent on the surrounding soil; and if that soil be bad, suffer just as much as if not planted on a mound; the mound may differ, but cannot cure the evil. If the soil be good, I do not see the utility of elevating the plant above the ordinary ground level.

Mr. Bright's chief, and so far as I see, his only reason for shallow planting, is because it is "nature's own method" of growing trees, and experience has proved it to him *the best ever devised by man*. Now, nature does not, when the plants require a mound, use a heavy mulching of leaf mould or litter to keep her nurslings alive for two years. She plants on the surface, even or unéven, and one of her first operations is to send *down* a root, and as long as that root finds itself in a suitable medium it continues to extend downward. I have probed with a stick the hollow root of a Carolina pine tree to the depth of twelve feet or more, and the root was then more than a foot in diameter. I have seen beautiful examples of nature's own planting on some of our bluffs, where the soil has been washed away, and left the tap-roots of trees exposed to the depth of fifteen feet, and thick roots at that depth, so that the tree seemed to have nearly as much wood below as above ground.

Now, I might argue that what is true of a pine tree in the light, sandy soils of Carolina must be true of a pine tree in the heavy clays of Pennsylvania; yet, such an argument would be evidently absurd. Taking nature for my guide, I must assert that, as our trees sent down their roots to an immense depth—to the water line, in fact, be it two or ten feet—I might assert that it would be to the manifest advantage of the tree to sink a well where the tree was to be planted, and fill it up with good soil to encourage the development of the tap-roots, which would be another absurdity.

Gardeners generally appear to have a particular spite against tap-roots, as if the gardeners know better than the trees themselves what is good for them. Not content with nature's operations, they seek to improve upon them; yet, by a singular crookedness in reasoning, stultify a self-evident law, by depriving a tree of its main stay—a tap-root.

No one will dispute Mr. Bright's conclusion, that a tree set comfortably on a mound of good earth, and warmly mulched with leaf mould, is in a better condition to live and thrive than a tree plunged deeply down into a cold, "dank cistern of a hole;" but the latter is not the proper mode of planting a tree. If Mr. B. wrote his article merely to prove that trees planted as he directs, would succeed better than when planted in this horrible "dank hole," I have no doubt of his superior success. The question is, I think, whether his trees will succeed better planted as he directs, than if properly planted on a level surface—the same pains, the same amount of labor being expended in each case. If he proves less than that, he proves nothing.

As a matter of taste, I should decidedly object to having a fine lawn disfigured by those formal rounded mounds at the base of each tree, giving a puerile and artificial effect, suggestive of ancient circular flower beds, that had been indiscreetly planted with a large growing tree in the center of each, which tree had finally overpowered the more humble flowers and become sole possessor of the land.

These remarks of mine are not intended to afford aid and comfort to that large



and in the north of France generally. He adds, that in so far as it concerned the vine, it had in addition the effect of preventing the blighting and falling of the berries.

“In his experiment, M. Bourgeois proposed to himself to decide the following questions, left undetermined by his predecessors: first, to fix the epoch in which the annular incision has most chances of success; second, to determine the width and depth of the incision; third, to discover whether it is best to make it on this year's branches, or on the old wood; fourth, finally, to be assured of the precise point where it ought to be made, relatively to the bunches, in order to produce all the effects expected.

“The discussion was opened upon these different points of the question, and many members took part in it. These are the most important conclusions to which they arrived: M. Pepin acknowledged that the annular incision of the branches of the vines deserved to enlist the attention of the cultivators of the vine; he believed that it might be of real service when the vines are placed in conditions altogether unfavorable, and that its habitual consequences are a more precocious or more perfect ripening of the fruit.

“M. Hardy had for ten years practiced annular decortication as well upon the vine as upon other fruit trees; he, too, believed that it advances the ripening, in a proportion that varies according to situation, from four to seventeen days, but he remarked at the same time, that it diminished the quality of the fruit. He cites, as pertinent to this, a proprietor of vineyards, near Soissons, who, having practiced the operation upon a great scale, was obliged to abandon it, in consequence of the deterioration of his wines, the prices of which remained lower than those of the wines of his neighbors who had not practiced the operation.

“A third member, M. Chivereux, having examined and tasted the grapes presented by M. Bourgeois, declared that he found a sensible difference between those which were situated below, and those which were above the incision. These last appeared manifestly inferior to the others, as well in the flavor as in the size and firmness of the berries.

“Notwithstanding that the practice of the annular incision upon the vine goes back to the year 1776, M. Hardy observed that it has nowhere become general; it has always, on the contrary, remained in the condition of a simple experiment. Sober cultivators of the vine have never used it otherwise than by way of curiosity. Such, in particular, is the case with those of Thomery, skillful and so attentive to minutia in the matter of vine culture, and who have never adopted the annular incision as a means of improving their crops.

“As a last remark, M. Pepin declares that the annular incision has the effect of constantly weakening the subjects upon which it is practiced, which is, it must be avowed, more than a compensation for the advantages that it can offer. M. Hardy confirms what was said by M. Pepin, by facts taken from his own observation. Trees always suffer, and their life is more or less abridged after having been submitted to annular decortication, at least during many succeeding years.

"These results will not surprise persons accustomed to reflect. It is a fact, very general, if not without exception, that the fruits which, without detaching themselves from the tree, undergo any change whatever, whether in consequence of a disease of the subject which bears them, whether from the fact of a puncture by an insect, whether from any other cause, take much before those that have remained healthy, the appearances of maturity.

"There is no one who has not remarked this upon cherry trees, apricot trees, plum trees, etc., the fruits of which attacked by some one of the accidents that we have just enumerated, become colored with the tints of ripeness before they have perfected their normal shape; but it is known, too, that their flavor is greatly changed. The annular incision having the effect of impeding, or even of arresting the advance of the sap, which, if it were abandoned to its natural course, would be attracted by the fruit, produces upon the latter an effect analogous to that which an accident would originate, such as the partial breaking of the branch or that of the tree itself. The fruit not receiving more or receiving less sap has the sooner completed the elaboration of it, but even from that also, it is poorer in juices, relatively to the mass of its solid tissue. And, as to the weakening of the tree, it results from the disorder brought into its constitution by the continued derangement of the equilibrium which ought to exist between the work of its roots which absorb, and that of the organs in the air which elaborate. In fine, annular incision is an operation contrary to nature; consequently bad and admissible only in the case where the conditions of culture are so unfavorable that the only choice is between gathering imperfect fruits or gathering none at all."

### HABITS OF ANIMALS.

BUVIER places monkeys next to man in the scale of being. But their grotesque resemblance of the human figure furnishes the only reason for this classification, since in physical structure and intellect they hold a much lower place. They are called *quadrumanæ*, or four-handed, but these four hands are only feet, formed for grasping branches of trees, and are by no means equivalent to the two hands of man. Near a cultivated region they become a great nuisance by their predatory habits. Keeping concealed during the day in the depths of the forest, they sally out at night, setting watches to guard against surprise, and begin their attack upon cornfields and orchards, sometimes forming a line from the orchard to the forest, and pitching the fruit from hand to hand into the covert.

Monkeys are found in the islands of the Indian ocean, the southern coast of Asia, many parts of Africa, South America, and the rock of Gibraltar, in Europe. They live in the recesses of the forest, or in the inaccessible parts of the rocks, as at Gibraltar, and the Cape of Good Hope. Various species are found in different countries, ranging from five feet and a half high to the size of a small squirrel. The food of most species is entirely vegetable, but tame individuals frequently eat meat, or any-











## THE MALVA AS A FORAGE PLANT.

EDITOR CULTURIST.—As the subject of producing food for cattle is now engaging the attention of agriculturists, allow me to suggest an idea that I think would be good if carried out. I presume that it is well known to every one that has seen the malva, that cattle and horses are very fond of them; they will eat not only the leaves ravenously, but if very hungry, even the sprigs and limbs—they seeming to have juice enough in them to pay for mastication. Therefore, for green food for cattle and horses during the dry season, I propose to plant a field with malva plants, say four to six feet apart each way; so that, at two years old, they would almost meet to cover the field entirely; when, at that age and at the season of the year when cattle would most need them, turn them into it. They would eat the leaves first, then the stalk, if there should not be leaf enough to satisfy them; but, if there was but just enough cattle for the fodder, it would grow about as fast as they would eat it, until the winter's rain set in to make pasture of their grass lands, when they could be turned out of the malvas, and had they been much broken down, prune them clean, and leave them to flourish again, ready for your stock in the next dry season. Experiment only would show how much the land would bear before being impoverished; but I know that they flourish wonderfully on the shallowest, sandy soil of our hills here. There is a great deal of gluten in the plant. I don't know how that would effect milk or dairy cows for the market, or for butter; but I should think the experiment would be worth the trial by dairymen. I think they would answer another very important need on many farms in our state, as a plantation of a few acres of them in two years, would furnish all the fire-wood needed for the house.

BENICIA, April 16th.

O. H.

We have frequently noticed with what avidity animals consume the forage of the *malva*, whenever they have access to it; but it never occurred to us to grow this exceedingly hardy, broad-leaved shrub as forage. Cattle and horses will always—to use a common saying—“if they can steal it,” reach over a fence and feed upon almost any description of plant or tree leaves; but turn them into a forest of the same trees, and they will soon discard them. We are of the opinion, however, of our correspondent, that something of good to the interest of the California agriculturist and stock-raiser may grow out of the suggestion. Why not cultivate perennial shrubs and low growing trees, the leaves of which are suitable for forage, as well as to grow grasses? The malva is ever green in our climate; its leaves are eagerly eaten by animals whenever they can get at them; its habit of growth is low and spreading, and might be grown even more so by early cutting back the leading top shoots. A field of the malva, planted just close enough that when three or four years old would nicely cover the ground, or presenting mere paths of open space among them, for animals to range, would be a beautiful sight, and we are not at all certain but it might prove a profitable investment. What the effect of denuding the malva of its leaves at cer-







feeding to stock ; and yet, not the least among the advantages of the practice is, that it enables the harvester to commence several days earlier than he otherwise would. The proper time of cutting must be determined by every-day inspection as the grain approaches maturity. Some who favor early cutting say, that the proper time is when six or eight inches of the stalk below the ear has turned yellow, and the grain, when shelled out in the hand, can be mashed with the thumb, being nearly as pliable as very stiff dough. Others say that as soon as the wheat is so far matured that when mashed under the thumb, no appearance of milk remains, is not too early to commence ; and yet, others are governed quite as much by the apparent maturity of the straw, with less reference to the condition of the grain. Edward B. Hunt, in the *Indiana Farmer*, says :

“ In 1859, I cut my wheat as soon as the straw had turned yellow ten inches from the ground, and think that nearly all the grain was saved, which would have fallen, had the wheat been left standing until the grain was fully hard ; and sixty-three and one-half pounds was the weight per bushel. The grain was tramped out by horses. The straw was not broken very much, but was tough, and could be pitched like short hay. I put the straw under shelter when threshed, and am using it in the place of hay. My horses and cattle seem to be in as good condition as when I fed hay, and they eat it well. I hauled my wheat from the field into the barn in about two weeks after cutting.

“ In 1857, I cut ten shocks of wheat seven days before wheat was thought to be ripe, and found the berry full and heavy.”

The fact that many of our most careful and observant farmers are practicing upon the plan here advocated, with uniform success, should induce others to try what many seem determined to look upon as mere theoretical “book-farming,” applied to the harvesting of wheat.

### ANOTHER INSECT ENEMY.

EDITOR CULTURIST:—Inclosed you will find some specimens, not of silver ore, but of a little miner who runs his tunnel into our apricot and peach trees, thereby producing death speedily. In examining the little fellow with a common pocket microscope, he appears to be of the bug kind ; but his form seems quite different from anything described by either Elliott or Downing. He is forwarded to you for the purpose of giving a note of warning to those engaged in the cultivation of the delicious fruits above mentioned, and if possible, eliciting information that may lead to detection and remedy.

Some time ago, it was discovered in some of the gardens in this place, that peach and apricot trees were in a dying condition, and it was supposed that over irrigation was the cause. One man cut down a number of his peach trees. This afternoon, my neighbor, Mr. Churchill, who is a subscriber for your valuable magazine, discovered a couple of limbs on an apricot tree, apparently dead, the fruit having fallen off.

On examination, he found a small perforation, and on following it up, he found the enemy. From appearances it would seem that some poisoned secretion was imparted to the wood, causing the death. There is no girdling or visible removing of the wood or bark, saving only the very small perforation itself, and that is made generally in a direct line towards the center of the limb or tree, but not generally reaching to the center. A sample of the wood as perforated is sent, and in it you will likely find a live bug ensconced, as one of them entered his hole before the envelope was closed. Unless a remedy is found, I fear there will be sad havoc among those fine fruits; and the insect is so very small, and his operations so deadly, that I fear he will be hard to conquer. Please present this matter for the consideration of your readers. The trees supposed to have been killed by over irrigation, were found, on examination, to have been killed by the insect.

J. SHARP.

IONE CITY, NEVADA Co., April 10th.

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The insect is new to us. On mentioning the matter to a horticulturist of no mean pretensions in the line of fruit-growing, he very carelessly remarked: "Oh! nothing but the borer." We can assure our pomological friends that it is not the "borer," though he may be a great bore, and bores his way into our finest fruit trees, to their certain destruction. The insects sent us—which were received in good condition—are not larger than a small flea, and seem to be in their perfectly developed state, having wings under a wing-sheath, peculiar to certain species of the insect tribe. The suggestion of our correspondent, that the death of the tree or limb is from some poisonous secretion of the insect, is doubtless true, as the mere puncture could not produce it; for a hole bored with a bit, the sixteenth of the diameter of a limb, quite through it, does not necessarily kill it; whilst the bore of this little rascally intruder, without even reaching the center of the limb, kills it outright. Fruit-growers will do well to be on the watch for this pest, and where found, carefully study his habits, with a view of discovering a preventive of its ravages.

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#### IRRIGATION IS EXTENDING.

**B**ECAUSE some one told Horace Greeley, and he told the public, that fruit trees could be grown without irrigation as well in California as elsewhere, a perfect storm of, "I always knew it," and "I told you so," was heard from every quarter of the state, and almost every man who had a bearing fruit tree, seemed to have suddenly discovered that it had been grown, and was productive without irrigation; hence, the declaration of a cotemporary, that "irrigation is worse than useless." But it seems there is something more of irrigation, as effecting the agriculture of California, or indeed of any country, than just merely pouring a bucket of water round a tree. Irrigation, we admit, is not needed in localities where the soil is sufficiently moist to grow trees or field crops without it; but there are thousands of acres of rich lands





## FOLLOWING NATURE IN AGRICULTURE.

**N**EVER was there a saying with more of truth in it than that made by a writer in the present number, that "poor dame nature is dragged in by the ears to stand godmother to all the bantlings that the busy brains of our numerous horticultural writers bring forth. Let it only be proved, or rather supposed, that such a process is founded upon a natural law, or upon what we conceive to be a natural law, and the writer imagines his argument to be irrefutable." For the benefit of those who would lay so much stress upon doing things according to nature, or because nature does it; such as giving to ripening strawberries an artificial shower, as suggested by our cotemporary of the *California Farmer*, we remark that, in other countries than California, nature may dash her rain showers upon the ripening strawberries, wetting, souring and sanding them; but here, she seems generally to understand herself better than to do it often, and here we have the best berries, and the longest strawberry season of any country in the world. In this, then, we would not do as recommended by the Colonel—shower our strawberries at the time of ripening—because nature does it in some other country than this. Nature never cuts back the grape vine annually to three or four buds; but the successful grape-grower does it. Nature seldom cuts back or heads in the peach, plum or apricot trees; but very many of our best fruit-culturists do it. Nature seldom transplants a tree or mutilates its roots, or propagates from sections of either limb or root; nurserymen do it. Nature sows most of her seeds directly upon the surface of the ground; shall we follow nature here? We might go on almost ad infinitum in showing up the absurdity of making our horticultural practices, in all cases, conform to the operations of nature. In some things, it is very well to *follow nature*, if you will use that term; whilst, in others, it will be better to *lead nature*, or do what experience has shown to be the best practice, whether nature does it in that way or not.

There are some few things that others rely upon, or expect nature to accomplish, that we doubt very much whether she ever troubles herself in the least about. We don't believe the "changes of the moon," as they are called, have the slightest effect upon the weather; if it does, the moon has more than its match in producing even a shower of rain in California, for months together every summer; and then, when it rains as it did in the winter 1852-3, for forty-six days together—just six days longer than was required to set Noah's ark fairly afloat—the moon was utterly powerless in causing a cessation of rain for a single day. We don't believe there ever will be any material change in the climate of the Pacific coast country, so long as it is governed—as it certainly is, to a very considerable extent—by the great ocean and wind currents of the Pacific seas, north and south, making their way inland. And finally, we do not believe the artesian wells of Santa Clara valley, or any other country in which they are situated, will ever dry up, or render waste such place or country, or do injury to its vegetation by supplying the waters of irrigation. Others may differ with us on all these subjects, without irritating us in the least; but the charge of our advancing new doctrines upon the subjects we discuss, seemed to require that we should, to a certain extent, define our position.



the common cows are dropping small, deformed calves that die as soon as born. One of my neighbors has lost fifty per cent. of his calves this spring from the same cause. I have not yet lost a calf from a graded cow.

You say your experience indicates that the Durhams or short-horns are a *pampered* breed, and not suited to California, except where they can have luxurious food and treatment. It may be the case that, in many instances, they *are* pampered, both in New and in Old England; but, in the latter place, it is certainly not so in all cases. Some months since, I wrote to a friend of mine near Liverpool—one of the best judges of stock in Great Britain—to send me out a bull and cow of the best Ayrshire breed, and also of the *pure blooded, improved* short-horn. In answer, he strangely advised me to have nothing to do with the Ayrshires; said that he could select me a short-horn bull and cow from a milking family, that would equal, if not surpass any Ayrshires for dairy purposes, and in fattening, would give far more beef for an equal amount of food; that, as my object was to improve my California stock as rapidly as possible, a short-horn bull was much the best adapted for the purpose, as it was a well known fact, that they imparted to their offspring the peculiarities of their breed and form more completely and surely in one cross, than an Ayrshire or Devon bull would in two or three.

Under date of December 9th, he writes: "The bull I have offered for was bred by Mr. Brune, of Braithwaite; his sire, a bull *hired* from Booth at two hundred guineas the season. Mr. Willis, of Carperly, whose stock I also saw, had Booth's 'Lord of the Valley,' also at two hundred guineas. I was surprised to find these valuable bulls and herds of cows out in the field; *day* and *night*, at this time of the year, and in a *high, cold* country, and getting no food except the frosted grass; and yet, all in excellent condition. They find the cows breed much better when so kept, as they have such a tendency to lay on fat when better fed."

I am not importing short-horns for sale, but for the improvement of my own stock; and write this merely from a desire that others may, if they please, reap the benefits of my experience; and to show them that it is possible to select from herds of the *purest blooded and most valuable* short-horns, bulls and cows that have not been pampered and luxuriously treated, and that they may not be led away too easily to believe that there is nothing like Devons.

A SUBSCRIBER.

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We are very glad to hear so good an account of the short-horned crosses in California, and still better pleased to know that we are to have the full blood direct from first hands. Doubtless full bloods may be obtained in the Atlantic states, but if imported directly from Great Britain, the probability is that, with the care likely to be bestowed by the agent of our correspondent, in the purchase of the animals ordered, California, or Butte county, will be in possession of enviable blood in the line of improved breeds of cattle, at least in the direction of improved short-horns. If the crosses of our improved breeds upon the natives, produce a hardier animal, better suited to the conditions of our climate and forage than the old native breed, may we not expect that the full blooded, imported stock may be even better than though

mixed with a single grade of native blood? We can see nothing to be gained in a continuance of native blood in ill-formed carcasses, unless some one good quality can be perpetuated; and if they do not possess even the quality of hardihood, or the powers of subsistence upon a scanty forage, we can hardly conceive of the least use in perpetuating the breed by cross upon or with better blood. We shall be pleased to hear from our correspondent again, upon any subject he may feel disposed to address us.



## ART, SCIENCE AND INVENTIONS.

**RESULTS OF ART AND SCIENCES.**—Sir David Brewster, the eminent Scotchman, whose successful researches into natural science have covered his name with universal honor, was lately inducted into the office of principal of the University of Edinburgh, to which he had been unanimously elected. On that occasion, he addressed the professors, graduates and matriculated students of the University, as well as a large crowd of other dwellers in the Scottish metropolis. What he said upon the indebtedness of mankind to the arts and sciences is so true that we take pleasure in presenting it here. Speaking to the students, Sir David Brewster said :

“There is only one other branch of study to which I am anxious to call your attention. The advances which have recently been made in the mechanical and useful arts have already begun to influence our social condition, and must affect still more deeply our system of education. The knowledge which used to constitute a scholar, and fit him for social and intellectual intercourse, will not avail him under the present ascendancy of practical science. New and gigantic inventions mark almost every passing year; the colossal tubular bridge, conveying the monster train over an arm of the sea; the submarine cable, carrying the pulse of speech beneath two thousand miles of ocean; the monster ship, freighted with thousands of lives; and the huge rifle gun, throwing its fatal, but unchristian charge across miles of earth or ocean. New arts, too, useful and ornamental, have sprung up luxuriantly around us. New powers of nature have been evoked, and man communicates with man across seas and continents, with more certainty and speed than if he had been endowed with the velocity of the race-horse, or provided with the pinions of the eagle. Whatever we are, in short, art and science surround us. They have given birth to new and lucrative professions. Whatever we propose to do, they help us. In our houses they greet us with light and heat. When we travel we find them at every stage on land, and at every harbor on our shores. They stand beside our board by day, and our couch by night. To our thoughts they give the speed of lightning, and to our timepieces the punctuality of the sun; and, though they cannot provide us with the boasted lever of Archimedes to move the earth, or indicate the spot upon which we must stand, could we do it, they have put into our hands tools of matchless power by which we can study the remotest worlds; and they have furnished us with

an intellectual plummet by which we can sound the depth of the earth, and count the cycles of its endurance. In his hour of presumption and ignorance, man has tried to do more than this; but, though he was not permitted to reach the heavens with his cloud-capt tower of stone, and has tried in vain to navigate the aerial ocean, it was given him to ascend into empyrean by chains of thought which no lightning could face and no comet strike; and, though he has not been allowed to grasp with an arm of flesh the products of other worlds, or tread upon the pavement of gigantic planets, he has been enabled to scan, with more than an eagle's eye, the mighty creations in the bosom of space—to march intellectually over the mosaics of sidereal systems, and to follow the adventurous Phaëton in a chariot which can never be overturned.—*Life Illustrated*.

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**NEW COMPOSITION FOR BLASTING ROCKS.**—A Frenchman named Detrets is said to have invented a new compound for blasting purposes, composed of 52.5 parts of nitrate of soda, 27.5 parts of spent tan bark, and twenty parts of powdered sulphur. The niter is first dissolved in boiling water, the tan bark is then added and thoroughly mixed while the solution is hot, and the sulphur is afterward added in the same manner. The mixture is then dried and is ready for use.—*Id.*

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**THE LIME LIGHT.**—A new, brilliant and very economical light has been recently tested on a large scale at the Crystal Palace, London. It is described as more powerful than the gas from coal, giving an intensity of brightness, with steadiness, continuity, and diffusiveness. In short, that it is every way practically available for the ordinary purposes of life. The new light is obtained by projecting a jet of oxygen and hydrogen, or oxygen and carburetted hydrogen gases combined upon a surface of lime, and so regulating the supply and protecting the lime from crumbling away as to insure with perfect continuity a maximum brilliancy of intensity. The power of illumination is immense—a single jet of medium size being equivalent to the light of four hundred wax candles of four to the pound. It is represented to be peculiarly adapted for coast lights, steamers, sailing vessels, railways, signals, bridges, wharves, factories, churches, public rooms, squares, large and important thoroughfares. For its portability, it is eminently adapted for military operations in the field, both in attack and defense of important positions, as well as the sea generally. On the score of expense the saving is very great. The lime light costs two cents, and oil thirty cents for the same amount of illumination.—*Railway Times*.

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**SIMPLE FARM IMPLEMENTS.**—We have called the attention of inventors to the necessity of simplicity in inventions, and in no department in which human ingenuity is called forth is simplicity more indispensable than in implements intended for the farmer's use. Machinery for manufacturing purposes may be expensive; it may be somewhat complicated, and yet, if it is the best the market affords, and does its work with a satisfactory margin of profit, capitalists may be found to pay the expense of construction, and engineers to run and keep it in order. With the farmer it is, in

most cases, different. The majority of farmers are men of limited means, and as most of the implements made for their use are only of value to them during certain brief portions of the year, they cannot afford to pay for expensive machinery, with, perhaps, the exception of a few of those who farm on an extensive scale. With the great mass of farmers it is not only a question, which is the cheapest machine, but also whether any are sold at a price which, in their circumstances, they can afford to pay. Another thing to be considered is, that every farmer is, of necessity, his own engineer, and the machines he uses must be sufficiently simple that he can, in ordinary circumstances, keep them in order, and that his hired men, Patrick and Hans, can work them. If they do not meet these requirements, he is obliged, as a matter of necessity, to adhere to the old system of hand labor. And yet, for some of the operations of the farm, machinery is almost indispensable. In some of them the question of time comes in—the work must be done then, or a loss is the consequence. If we go to the country in the harvest season, we shall find that it is almost impossible for the farmers, with all the help they can well employ, to keep pace with the maturing of their crops. They commence before the grain is fairly ripe; the farmer urges on his men in the field from early in the morning till late at night; while the “gude wife” lends her encouragement by loading her table with the best and most substantial food her larder affords; but, in spite of all this urging and coaxing; in spite of all the power the force employed can bring to prevent, the last of the crop when reached is too ripe to be gathered without loss. We have before alluded to the particular necessity of more simplicity in the construction of machines for harvesting purposes. Machines of this kind are too complex, altogether. A good mowing and reaping machine costs a hundred dollars, more or less, and is a perfect pile of machinery, or at least must have that appearance to the farmer. The result is, that many farmers never even saw one, and a much larger number never owned one, and never will till a simplified construction shall bring them more within their reach. We believe that such a construction is possible and practicable. To begin with, the machinery necessary to give a rapid vibration to the knives, costs a large sum of money, is expensive, and in some instances considerably complicated. We believe that this machinery may, by ingenuity, be dispensed with altogether, and fixed knives to be so arranged as to do the work successfully. If this can be done, it will be one great step in the way of progress in this class of useful inventions. It will dispense with the greatest cost of this class of machines. Let inventors try what they can do, and give us the result of their labors.—*Life Illustrated*.

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**OILING HARNESS LEATHER.**—Oils, when applied to dry leather, invariably injure it; and, if to leather containing too much water, the oil cannot enter; wet the harness over night, cover it with a blanket, and in the morning it will be damp and supple; then apply neatsfoot oil in small quantities, and with so much elbow-grease as will insure its disseminating itself throughout the leather. A soft, pliant harness is easy to handle, and lasts longer than a neglected one. Never use vegetable oils on leather; and, among the animal oils, neatsfoot is the best.



### DURATION OF VITALITY IN SEEDS.

**T**HAT some seeds, under accidental circumstances, have an almost indefinite period of vitality, is evident from the fact that grains of wheat, taken from the hands or the wrappings of Egyptian mummies, several thousand years old, have vegetated during the present century. But such things are exceptions to the general rule. How, then, may we ascertain, with considerable certainty, whether the seeds we purchase are worth the money? Many experiments have been tried, and reports made, but not always with great accuracy. The following account is the most reliable we can present. It is understood, of course, that the seeds are kept under good circumstances—never in a hot, damp atmosphere.

Cabbage seeds, cauliflower, broccoli and savoy, good for four years. Lettuce, spinach, carrots, radish, onions, parsnips, peas, beans and other leguminous plants, good for one or two years. Beets, celery, cucumbers, melons, squashes, pumpkins, gourds and the like, good for ten and more years. Turnips, mustard, endive, sea-kale, asparagus, good for three or four years. Tree seeds, not to be depended on after the second year. Oats, wheat and barley, good for three or four years. Annual and perennial flower seeds, good for two or three years. Melon seeds have been known to vegetate when forty years old. Some careful gardeners prefer old seeds of the cucumber and melon tribe, because they think that new and plump seeds produce plants which make a rampant growth of vine, but bear little fruit, and that late in the season. Rye has been known to vegetate when forty years old; kidney beans, when one hundred; and raspberries when sixteen hundred (?); the sensitive plant when sixty years old.

And here, a word upon *seed-saving*. It is of the greatest importance for the farmer and gardener to do this work well, as upon it his success greatly depends. It is with this, as with the breeding of valuable stock. He who gives his attention to it and becomes successful, will attract the notice of others, and his seeds will command abundant purchasers at the highest prices.

To preserve seeds well, they should generally be gathered when fully ripe, be well cleaned, dried in the shade—not by strong fire-heat—and kept in a cool place, free from moisture. There are a few exceptions to this. Some seeds—as horse-chestnut, acorn, maple, evergreens, grapes, apples, etc.—should be planted before they become dry, else they will not vegetate well. All seeds liable to be attacked by insects, such as peas, turnips and radish should be occasionally examined, and passed through a sieve, to clean them from dust and other matters likely to attract vermin. It is of the greatest importance to label seeds carefully, at the time of gathering them. A number of sorts, as of melons and squashes, are gathered at the same time, and as they look much alike, they get mixed, or their distinctive names forgotten. When planting comes round, what confusion! And if the mixed seeds are planted, what increased confusion at the fruiting-time!

Since writing the above, we see it stated that the seed trade of Boston amounts annually to three millions of dollars. Ten tuns of turnip seed were sold there last

year, and the same of beet seed. Of mignonette, five hundred pounds only just supplies the market. The seed trade of New York and Philadelphia must be much larger—we have no statistics on hand.—*American Agriculturist*.

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## PREPARING POULTRY FOR MARKET

**M**ESSRS. B. and S. Beatty & Co., of Cayuga county, New York, who are among the largest poultry breeders of the United States, furnish some general instructions, which are worth republishing here, on the mode of preparing poultry for market:

“Never kill a bird unless it is fat. Never cut off the head of a turkey or goose, but hang them by the heels where they cannot bruise themselves in the death-struggle, and stick them with a small knife, and bleed them to death. Ducks and common fowls, if decapitated, should be held or tied, and hung up to bleed to death. Never kill your birds with full crops—you will lose in price more than you gain in weight. Never strangle them, so as to leave the blood in. The best plan is to tie all kinds of birds to a line, drawn from post to post, or tree to tree, and stick them just in the forward end of the neck.

“You may pick all sorts of birds dry, if you don't tear the skin; but you must scald them afterward by dipping them suddenly in and out of boiling water. Don't scald the legs too much, whether you pick first or afterwards. Be careful of that. You must pick them clean, and the after-scalding makes them look plump and good.

“Never draw a bird. It is worth while to pay freight on the intestines, because the meat cannot be kept sweet long after they are drawn and the air admitted inside the body. It is a practice of some of the best poultrymen, after the birds are plucked, to plunge them suddenly into boiling water, and then immediately into cold water. This gives them a clean, plump appearance, and makes them look fat if they are in decently good condition when killed. Nothing, however, can make a poor bird look well, while ill dressing will make the best look poor.

“Lay the birds upon clean boards, in a cold room, till perfectly cool, but not frozen; as at all times, but especially when there is a probability of damp, close weather, great care must be taken that the animal heat is out of them; and then pack in boxes with clean rye and oat straw, so that they must not touch each other, about three or four hundred pounds in a box, filled full. Mark the contents on a paper inside, and on the lid outside, and direct it to your commission merchant plainly, and send it by express, and the invoice by mail.

“Never kill your birds on a damp day, nor pack them, if you can avoid it, except in a clear, dry, cold atmosphere; and try to avoid night work when you are tired and your help sleepy, and all of you careless. No matter how light your boxes are; they must look clean, or your poultry will not sell at first prices. In packing, press the wings close, and press the bird down hard on the breast, the legs extending back,



and fill each course full, and then lay on straw and another course of birds. Nail tight, but don't let a nail project inward to tear the bird. Give your name and residence in full on the bill in the box and on the invoice by mail.

"Never pack in barrels if you can get good dry-goods boxes, as the rolling of barrels injures the poultry. Well-packed boxes of well-prepared birds will keep sweet for a long time in cool weather, and may be transported by express or by rail road, and, arriving in good order, can be sold readily at the highest prices."

We trust that these remarks may enable our friends to secure a good market for their poultry, and cultivate a branch of trade to material profit and advantage. The late M. Soyer states the best way of killing poultry is to take the bird by the neck, placing the thumb of the right hand just at the back of the head, closing the head in your hand, your left hand holding the bird; then press your thumb down hard and gull the head and neck contrariwise, the neck will break instantaneously, and the bird will be quite dead in a few seconds; then hang it for a short time by the legs for the blood to flow into the head, which renders the flesh much whiter. "In France (he adds) we usually kill them by cutting the throat close to the head. Both methods are good with regard to the whiteness of the flesh; but I prefer the English method, not being so barbarous."

### TAMING THE HONEY BEE.

BY J. S. HARBISON.

**M**OST authors have given it as their opinion, that the honey bee is capable of being taught submission, conveying the idea that it is necessary to tame them before they are of use to man. This opinion is so generally diffused amongst the people that a usual remark of persons visiting apiaries is, I suppose your bees know you, or they know you from strangers. I have never been able to discover any signs of recognition from my bees, they being just as apt to sting as those of a hive that I have seen and handled for the first time. If I am less frequently attacked by them than other persons, it is owing to understanding their habits and so can avoid many stings that I would otherwise receive.

That some persons are more liable to be stung than others, is owing to one or more of the three following causes existing:

1st. Color and texture of dress, dark clothes, or those of a hairy texture, particularly a fir hat, forms a prominent match for their keen sighted vision; hence, the wearer is liable to receive an occasional *dart*.

2d. Any quick motion, made in the vicinity of the hive, attracts their notice and causes them to attack the person making such motions.

3d. The smell of some perfumes, as well as that of some persons, is offensive to bees; also a person in bad health is more liable to be stung than when in good health.

Bees retain the same unchangeable habits, whether they are domiciled in the forest or in the finest flower garden—being, if any difference, more docile and less liable

to sting when handled for the first time than at any subsequent time. When a hive has been once opened and their combs disturbed, on returning to repeat the same operation a few hours or days afterwards, they remember it, and resent the intrusion. This proves that they are readily taught to be vindictive, and that but few are ever taught to be submissive. The latter can only be done by force or bribery, or the two combined.

**ARMED FOR DEFENSE.**—Nature has provided every animal and insect with means to protect and guard themselves or be guarded so as to ensure their proper increase. Hence, we find the honey bee armed and equipped in accordance with the above law. No less formidable weapon or less courage than that which they possess, would suffice to guard their young, in connection with a treasure that offers temptation to so many hungry creatures as honey is known to do. The season of greatest irritability is when there is least pasturage for them; for, while rapidly accumulating stores, they are more humble, and consequently handled with less danger and difficulty than at any other time.

**HOW TO CONQUER THEM.**—Smoke is the principal agent to be used. Various things are used for producing it, such as tobacco and rotten wood; but the most convenient, as well as the least hurtful to the bees, is dry cotton or linen rags, rolled up in the shape of a large candle; the size can be varied according to the volume of smoke desired. By setting one end of this on fire, it continues to burn slowly without flame, the smoke of which, if blown on the bees, is effective in subduing and driving them wherever wanted. Cold water sprinkled on them is also an efficient agent to effect the same purpose; and another way is to suddenly close up the entrance, and rap on the hive for a space of five minutes; on opening it, they are generally found to be subdued. This is owing to exciting their fears, causing them to fill their sacks with honey: they then have no disposition to seek revenge. Sweetened water or diluted honey is recommended to be given, by sprinkling it over the bees and comb. This is intended as a *peace offering to keep quiet*, while their works are being overhauled. This plan succeeds well where there is no danger of robber bees: it, however, requires more time than can well be afforded if time is valuable; hence, I much prefer any of the plans above recommended.

In my article—"Disease of Bees"—in your April number, an omission of two words occurred in the sixth line from the commencement. It should read: "It (foul brood) was brought into the state, and in connection with several apiaries, *previous to and* in the fall of 1859." As printed, the two words in italics were omitted; and *too* should have been *to*.



**SUMMER DRINK.**—Pour a quart of boiling water over half an ounce of loaf sugar, and half an ounce of cream of tartar, with the outer rind of a lemon, either fresh or dried. When cold, strain for use.

# Editor's Repository.

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WE wish again to address a few words personally to our patrons, subscribers for the CULTURIST, relating to a matter of great importance to us. We are constantly in receipt of letters, asking us to forward certain back numbers of the CULTURIST, to make complete volume one or two, as the possessor wishes to have them bound. Now, we wish to show you just the condition of things. In the first place, we send off regularly to every subscriber, his copy monthly, as soon as ready. We presume they are received, read, and "laid upon the table." After this, comes the trouble: Many copies are doubtless carelessly lost, others are lent to neighbors and friends who forget to return them. In due time a general hunt is made for the back numbers, either to refer to some article they may contain, or for the purpose of eventually getting them bound. Numbers two, five, six and nine are missing, and forthwith a letter is dispatched to us with the information, and desiring that we will send the missing numbers. Now is this right, unless the money for the same is sent with the order? We intend to print extra copies, always sufficient to supply missing numbers, but they cost us money for paper, printing and binding, and are not procurable without it. Besides this, we lay aside a few full sets for bound volumes. It so happens that, with our rapidly increasing subscription list, containing so many that will go back to number one of the current volume, we find ourselves short of the first few numbers, having only enough of them to make good our full sets; now, if we have to supply to our subscribers one of these back numbers, it breaks up a full volume, worth the full year's subscription price, or five dollars. To such an extent are we called upon to supply back numbers, and no money sent to pay for them, we find it necessary to adopt the following rule, which will be strictly adhered to.

If a back number is worth sending for by letter at all, it is worth it within one month after the date of its issue. Our rule is, therefore, this: If a number is missing from having never reached the post office to which it is addressed, if the subscriber, within *one month* from the date of issue, will notify us that such missing number never reached the post office where directed, we will make it good; but if more than one month is allowed to elapse, and the missing number is ordered, the cash for the same must accompany the order to insure attention. We wish our subscribers and agents would be particular in this regard, as we find it absolutely necessary to make this a rule and adhere to it.

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FRONTISPIECE—EXCELSIOR BEEHIVE.—This is the new and improved beehive, patented by Asa Blood, in November, 1858. Its merits, as claimed, consist in its perfect adaptation to the habits and convenience of the bees, as well in the process of breeding, as in storing the honey. The wording of the claim, as patented, is as follows: "I claim the main or breeding core B, in enclosing case C, in combination with the honey cases D in cap E; the several parts being constructed and arranged in the manner and for the purpose specified."

The upper engraving shows the complete hive, with the cap containing the honey boxes, opened, with one of the honey frames partly raised, showing the manner in which they are taken singly from the honey boxes; or the boxes can be all taken out and replaced by others. The hive can be

constructed so as to admit of the front C, being opened. At the top of the breeding box, under the cap E, is a ventilator for allowing dampness or foul air to escape without entering the honey boxes, the effect of which is to preserve the honey pure.

The lower engraving shows the inside of the honey boxes, D D, and the breeding core B. This hive, we are informed, has taken the premium wherever exhibited at the Eastern fairs, over all competitors. It is simple in construction, cheaply made and easily managed, and is *the* hive—we are assured—for the novice, as well as the experienced in bee culture. It is now introduced for the first, in this country, and manufactured at the works of Messrs. Blethen, Market street, south side, below Second. Stephen Parks, San Francisco, is the sole agent for the manufacture and sale of this hive for California, Oregon and Washington territory. Address orders to Stephen Parks, 185 Mission street, San Francisco.

**STATE AGRICULTURAL SOCIETY.**—The board of managers for 1860 met March 13th. Present, Hon. T. G. Phelps, President; C. I. Hutchinson, Ex-President, L. B. Harris, Nathan Coombs, J. S. Curtis, Vice Presidents; O. C. Wheeler, Secretary; D. O. Mills, Treasurer; Wilson Flint and P. J. Devine, Managers.

The secretary read letters from Wm. Rabe and Dr. E. B. Harris, apologizing for absence from the meeting.

The president, on opening the business of the year, made a short and appropriate address, full of hope and promise for the society's future.

The regular meetings of the board were fixed, as last year, for the second Wednesday of each month, at 7½ P. M. It was also agreed to hold a meeting of the board every Tuesday evening during the session of the legislature.

On motion, the following committee was appointed to revise and report, as early as practicable, the premium list for 1860: Nathan Coombs, C. I. Hutchinson, J. S. Curtis, Wilson Flint, P. J. Devine, O. C. Wheeler.

At a meeting of the board, March 20th, the president announced the standing committees for the year as follows:

*Finance*—T. G. Phelps, N. A. H. Ball, *ex-officio*, E. B. Harris.

*Library*—O. C. Wheeler, *ex-officio*, J. S. Curtis, P. J. Devine.

*Publication*—T. G. Phelps, O. C. Wheeler, *ex-officio*, D. O. Mills.

*Visiting*—Cary Peebles, Wilson Flint, Wm. Rabe, E. B. Harris, O. C. Wheeler.

[As a silencer upon the insinuations of those who would seem willing to throw discredit upon the management of the affairs of the state society, we append the report of the committee, appointed to examine into the condition and reports of the society for the last year, and we desire that those of our cotemporaries who consider the state society as dead, and as "not meeting the wants of the agriculturists of the state," give it a careful perusal.—ED. CUL.]

**REPORT OF COMMITTEE OF INVESTIGATION.** *To the California State Agricultural Society:—* Your committee on the reports of the society and the general affairs of the same, respectfully report:

1st. That, from their own personal knowledge, as well as from the report of the board of Managers, there can be but one opinion among intelligent and right thinking men, in relation to the character of the annual fair of 1859; which is, that it was grand in its conception, magnificent in its character, and most triumphantly successful in its results.

2d. That the books, accounts and vouchers of the financial officers of the society have been kept in the most accurate and approved manner; every bill, and when necessary, every item of such bill, duly filed and numbered, and to correspond with which, vouchers bearing the same number, properly audited, are on file, both in the office of the recording secretary and treasurer.

3d. That whatever objection or diversity of opinion may exist in regard to the finances of the society, such objection and opinion must relate to the manner of the expenditure, and not to the faithful disbursement of the funds, either in premiums or for other purposes.

4th. That, in the opinion of your committee, the board of Managers, by their arduous and self-

sacrificing labors in behalf of the society, have given ample evidence of the integrity and sincerity of their motives in the management of the affairs thereof.

5th. That we find the city and county of Sacramento indebted to the society in the sum of \$7,450 95, which your committee have been assured will be returned to the treasury of the society.

6th. That upon the reimbursement of such amount, to wit: \$7,450 95, there will be \$2,200 or more in the treasury—there having been four hundred and odd dollars paid into the treasury since the seventeenth instant.

In conclusion, your committee recommend:

1st. A vote of thanks to the officers of the society and the managers of the annual fair, for the able and successful manner in which they have conducted its affairs.

2d. That the recording secretary and treasurer receive each the sum of five hundred dollars for services rendered.

3d. That, in the future management of the society's affairs, regard be had to economy and retrenchment in all its departments, to as great an extent as possible, consistent with its success.

A. H. MYERS, J. R. HARDENBERGH,

WILSON FLINT, S. S. CURTIS.

I concur in the first four items and the last two recommendations.

R. D. FERGUSON.

Adopted unanimously.

The board of managers were authorized to fix the time for holding the annual fair at some time between the first of August and first of November.

On motion of E. B. Crocker, it was recommended to the board of managers that they hold a spring fair at some point on the bay, if they think it expedient, and the state of the finances justify it.

A vote of thanks, on motion of E. B. Crocker, was returned to Wells, Fargo & Co., for their favors to the society during the past year.

On motion of Mr. Winans, a vote of thanks was passed in behalf of the officers and members of the board of the past year.

The corresponding secretary being called for, came forward and addressed the society at considerable length; after which, the president for 1859, C. I. Hutchinson, Esq., answered the call of the society by addressing them in a feeling and patriotic manner, and then, on motion, the society adjourned, *sine die*.—*Monthly Journal of the California State Agricultural Society*.

We are pleased to notice the zeal manifested by the officers and members of the state society to increase its usefulness and advance thereby the general interests of agriculture throughout the state. Nothing can contribute more to this end than a well conducted state institution; and it is gratifying to see with what unanimity the committee of investigation reported in reference to its management during the past year. That the present year will witness a fair surpassing all preceding ones, will hardly admit of a doubt. Ability or effort will not be wanting, and we predict a success in keeping with former precedent, notwithstanding the efforts of one or more of our cotemporaries to defeat the efforts of its officers in their laudable endeavor to perpetuate the existence and usefulness of the society.

**AGRICULTURAL MEETING.**—The board of managers of the San Francisco Bay District Agricultural Society met yesterday, pursuant to call of the president, at the office of Samuel Brannan, Esq. Present—President Brannan, Vice Presidents Green, Lewelling, Jones, Cumming, Burtiss, Secretary Fargo, Treasurer Bond, and Director Center.

The secretary reported that he had discharged the duties entrusted to him, by notifying the officers of their election, procuring books and stationery for the use of the board, and publishing five thousand copies of the constitution and by-laws. The report was accepted, and the bills ordered paid.

On motion of Mr. Green, the chair appointed Messrs. Lewelling, Center and Pioche as members of the executive committee, to act with the president and secretary, as provided in the constitution. The secretary presented his official bond, with Henry Haile and John Center as sureties, and the treasurer presented his, with Samuel Brannan and John Center as sureties, both of which were approved.

On motion, the regular meetings of the board were fixed for the second Tuesday of each month, at 12 M. The president stated that he had a vacant room in Armory Hall building, which was at the service of the board, if it would answer their purpose, without cost to the society.

On motion, the generous offer of the president was accepted, and the thanks of the board were tendered to him for the same.

On motion, the secretary was authorized to procure the necessary furniture and fixtures required in the office.

The chair stated that he was authorized, by J. W. Tucker, Esq., to say that he would donate a seal to the society, and make the same whenever furnished with the design.

On motion, the thanks of the board was tendered to Mr. Tucker for his offer, and the executive committee were instructed to prepare a design for a seal and furnish the same to Mr. Tucker.

On motion, auditing committee, consisting of Messrs. Wadsworth, Green and Cumming, was appointed.

On motion, the secretary was authorized to deliver to any member of the board, certificates of membership in blank, to be sold to persons desirous of becoming members in the various counties. Wm. Green was appointed a committee of one to visit the Capital, and urge the passage of the law directing the appropriation to the state society to the district societies.

The executive committee was instructed to examine and report upon suitable location for fair ground at the next meeting. On motion, adjourned.

**BREEDING "IN AND IN."**—We are asked to give our opinion of "in and in" breeding, by a correspondent from Cedar Creek Saw Mill, Double Springs, Calaveras county. We do not feel inclined to enter upon anything like an extended discussion of the subject, believing that we can add but little to the arguments for or against the practice, that would be new to our readers. The subject is still an open question with large numbers of intelligent stock-growers, and as undecided as ever. Our own opinion is, and our practice would be, just this: Had we a full blooded bull and a full blooded cow, of any of the choice breeds of cattle, no matter how closely they were allied by blood, if we wished to retain or perpetuate the breed in its purity, and could not procure as pure blood to breed from, from any other quarter, we should never hesitate to breed "in and in," as closely as circumstances might make it necessary; but it would not be from anything like preference to the practice. As a principle, we do not believe in it.

From the same correspondent comes the inquiry, "I would also like to know the best season for budding and grafting fruit trees."

**BUDDING AND GRAFTING.**—Budding can only be easily performed when the bark of the tree to be budded peels or parts freely from the wood; because the process consists in introducing a bud between the bark and the wood; and this is usually done upon wood of the present year, though not necessarily so. Two or even three years old wood can be budded successfully, if the bark be soft and pliable, and peels freely. It is also the usual practice to use buds of the present year's growth; but this is not positively necessary; scions that have been cut for winter grafting, can be retarded in their growth, and the buds taken and inserted as *buds* instead of grafts; but not conveniently so, because they are destitute of the leaf stalk, so convenient in the handling of the bud in the process of preparing and inserting.

Budding, then, as usually practiced, consists in inserting *buds* of the present year's growth, upon wood of the present year. It is only necessary, then, to wait till the buds of the present season have become tolerably well developed or matured, and the tree to be budded peels freely. Cherries will bear budding much earlier than is necessary for the peach or apple, and yet, there is no particular objection to early budding of the peach; but cherries peel more easily, early in the season, say during the whole month of July, than they do later in the summer; whilst plums, apricots, peaches, and apples can be budded successfully almost as late as they continue to make growth, because their bark usually peels freely as long as they continue to make growth. It is generally expected



that buds inserted this season will remain dormant till the next spring : this is not necessarily the case always. Seedling peaches, upon a fertile soil, make usually an exceedingly luxuriant growth the first year ; they often make two-thirds of that growth after they are budded, and three-fourths of the whole growth is often above the point of insertion of the bud, making it necessary to cut away nearly the whole of the first year's growth, or down to the bud, the following season. There is a method that, if properly, can be successfully practiced, that will, in a great degree, save this first season's growth. It consists in budding as early as the stock attains sufficient size—say that of an old fashioned clay pipe stem ; now mark the conditions : After the bud is set, allow all to remain as usual for five or six days. In this time the bud will have become fairly attached to the stalk, if it ever does ; now cut away the top of the tree, not down to the bud, but to within four, five or six inches of it, depending upon the strength of the tree—the weaker growing should be cut the closest. The horizontal limbs, if any, should be cut in to within an inch or two of the body, but not close.

The consequence of this treatment will be that all the buds—including the one inserted—for six or eight inches from the top downward, will start forth into leaf ; now, as fast as they attain a length of leaf of say half or three-quarters of an inch, pinch them off, not all at once, but in the course of a week, until all are gone but the inserted one, which, by this time, will have made a growth of an inch or more. From this time all is safe ; the denuded stump can now be cut down close to the inserted and growing bud, and the remainder of the season, if propitious, will make a handsome growth of the desired variety, instead of remaining dormant till the following spring. Some amateurs practice inserting the bud, and at once cutting the entire top back to it. This plan we have tried ; we have often succeeded, but have sometimes failed, and in failing, lose the entire tree, which often happens in cutting down trees of any age close to the ground when in full leaf, in the heat of summer ; but follow our plan as recommended above, and the practice is a safe one. Leaving the whole top on for a few days after the bud is inserted, continues the natural circulation of the sap in full, enabling the bud to set at once, if it ever does ; whilst to cut away the whole top at the time of the insertion of the bud, causes an almost entire check to the circulation, whereby the chances of the bud setting is diminished. Leaving on a portion of the body of the tree, with a portion of its horizontal limbs and leaves till the buds being to break, secures the tree against the danger of death, from being entirely denuded of all leaves, limbs and buds, except the one inserted. Other trees than peaches are often worked in the same manner, and, with proper care, successfully. Grafting is usually performed in the winter and early spring, and will be treated of in due time.

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THE BORER—MULCHING—IRRIGATION.—EDITOR CULTURIST :—I send you the subjoined notes for publication, if you shall deem them of sufficient interest to your readers. Having but recently become a resident of this state, it cannot be expected that I shall have become familiar with all matters relating to your horticulture ; but having had some experience in other sections of the country, and feeling a lively interest in such pursuits, I shall esteem it a privilege to send you occasionally, notes and observations, which, if they do not benefit your readers, may tend to correct my own impressions, naturally springing from my new surroundings. [We shall be pleased to hear from T. A. S. monthly.—ED. CUL.]

*The Borer.* A correspondent from Iowa Hill says, in the CULTURIST for April, "I have been trying to find some preventive for borers, but thus far have not been successful." I have seen recommended, and have used, *boiling water* for the destruction of this destroyer of fruit trees—especially the peach. The tea kettle is a convenient vessel for the application. Take the water from the fire at boiling heat, and pour a pint or quart on the body of the tree about the base, extending upwards a foot or more from the crown of the roots, where the borer is generally found and his actions most injurious. The egg of the insect is sometimes found deposited higher up the body of the tree and at the axils of the limbs, but here they do but little harm. The *theory* is that the boiling fluid destroys both the egg and the larva—the borer. My experience has been, that I have not been much troubled with the borer since applying the simple remedy.

Two crops of borers are produced during the year; the first from eggs deposited the fall previous, in August or September, which remain in the tree during the winter, and hatch out and commence their depredations early in the spring, arriving at their perfect state, the moth or miller, in May or June (perhaps a little earlier in this latitude) and there deposit their eggs for a succession in August or September, and these last again for the spring following. Perhaps some of your readers may be apprehensive that, in using this remedy, they will destroy the tree as well as the borer. They need have no fears on this head; but to the cautious and timorous, I would recommend the experiment to be made on a few least valuable trees at first, and wait the result on them, which would be determined in a few days, as they are now in full leaf, and any serious injury would readily show itself in the foliage. The application should have been made earlier in the season, to check operations of the borer, and prevent the insect arriving at maturity; but may be resorted to now with good effect.

I doubt if the oil of soap is a sure preventive. It doubtless would be beneficial to the tree, and so would crude, or new made soft soap, diluted a little with ley, and rubbed on the body of the tree, from the branches to the roots, which I apprehend would be equally effective, readily procured and cheap.

*Mulching.*—In some of the earlier numbers of the CULTURIST, which accidentally came under my notice, I saw recommended several substances for *mulching*, and among them, in the mining districts, the *tailings* from the gold washings. A better material than tailings, or any other mentioned in the article, I think, is *chip litter*, which can be had in abundance in every mining neighborhood, and from almost every miner's cabin—the accumulation of years. This substance, too, is serviceable in more ways than one, being a non-conductor of heat, as well as a non-conductor of moisture; or rather is a non-conductor of moisture because a non-conductor of heat, and may be of use to *keep back* fruit trees in the spring, and avoid or lessen the hazard of injury from late spring frosts. It also affords a good mild manure, suited specifically to the requirements of the tree.

*Irrigation.*—Having been somewhat engaged in tree-pruning during the spring, and visited many young orchards, I am strongly of the opinion, that in many, if not in most cases coming under my observation, there has been a too free use of water—especially in fruit fields where vegetables and other crops are grown on the same ground, and both liberal manuring and irrigation are used to promote the growth of the latter. The injury resulting to the fruit tree is a too rapid, too long continued, and too strong growth of wood. The trees are too much drawn up in straight, perpendicular shoots, forming but an imperfect head, or succession of heads at wide distances apart, beyond the power of the pruning-knife to remedy, with wood less matured, fewer fruit buds for the coming year, and poorly flavored fruit for the present. Root pruning may lessen the evil in some degree; but this is mutilating at both extremities. The better method of obviating the difficulties named, would be, I apprehend, to “cut off the supplies,” instead of the roots—not so much as to stunt the tree, but enough to prevent their monstrous growth on the one hand, allowing sufficient to avoid a dwarfish habit on the other.

T. A. S.

**SAN FRANCISCO MEDICAL PRESS.** The second number of this valuable medical periodical has been placed upon our table. This number is entirely filled with original matter, including an abstract of the proceedings of the last session of the State Medical Society. The communicated articles—twelve in number—are from some of our ablest medical men in California, and cannot but be read with great interest, not only by medical men, but by the intelligent general reader. The PRESS is purely a California production. The editor designs to develop medical matters on this coast, instead of republishing stale articles from abroad. Thus far he has succeeded in no ordinary manner. The same enthusiasm and industry which has heretofore characterized Dr. Cooper as a practitioner of surgery, are apparent in his editing a medical journal, and will doubtless crown the present enterprise with abundant success. The PRESS bids fair to do the greatest possible good. Its efforts will doubtless restore harmony among medical men generally, promote the interest of medical societies throughout the state, and stimulate the members of the profession to greater exertion; and, above all, the editor's enlarged practical views of medical matters will, when fully known to the balance of the profession of the state, be not only highly advantageous to the members themselves, but the community in which they reside. The copy before us is the second edition of number two.









THE

# CALIFORNIA FARMER

JUNE 1887

## PREPARE FOR HARVEST

**J**OYOUS, bounteous, glorious, yellow harvest is at hand, and the farmer's heart throbs with grateful emotion as he sees the ripening grain, the waving corn of plenty evoked from the bearded husk as rustled by the gentle breeze. The wheat, bask in the general gladness, ever sporting onward in a golden sea of life. This period just before the reaper has commenced its work, and the farmer is the most happy time of his life; because it is all the work of the year, the labors of the plow, and before the weary toil of garnering the crop has commenced, or he shall have reaped the result of his year's operations into a golden number of bushels, or adjusted its proceeds in the financial trial balance of loss and gain. Thus, therefore, being the most proper time for him to philosophize, we desire to have a consultation with him, in which we shall ask many questions about his business, and offer some suggestions for his better cultivation.

Having finished plowing, harrowing and sowing for the season, have you gathered up your plows, harrows and seed, and put them under cover, so that they will not be checked and warped by exposure to the effects of long summer weather? If you have not, you should do it now, for two reasons: they will last longer, and can be found when the season comes around for plowing again. It is well to sharpen your plows and harrows, and to have them well oiled, giving to the polished mould boards of the plow a smooth surface, which would cover the whole with. Now, if you are in the habit of having your plows and harrows, it is reasonable to expect that they will last longer, and be pursued in the course with your reapers, rakes, scythes, forks, and other implements used in the harvest; if so, the repairs made at the blacksmith and wheelwright were not drawn, and the money to lay down for the cost, instead of being



T H E

# CALIFORNIA CULTURIST.

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J U N E, 1860.

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## PREPARE FOR HARVEST.

**J**OYOUS, bounteous, glorious, yellow harvest is at hand, and the farmer's heart throbs with grateful emotions as he scans the ripening grain, and lists to its song of plenty evoked from the bearded husk as rustled by the gentle summer breeze, which basks in the general gladness, ever sporting onward in wavy, golden undulations. This period, just before the reaper has commenced its work, may be regarded as the most happy time in a farmer's life; because it is after a season of rest from the labors of the plow, and before the weary toil of garnering the crops has commenced, or he shall have reduced the result of his year's operations into a given number of bushels, or adjusted its proceeds in the financial trial balance of loss and gain. This, therefore, being the most proper time for him to philosophize, we desire to hold a consultation with him, in which we shall ask many questions about his business, and offer some suggestions for his consideration.

Having finished plowing, harrowing and sowing for the season, have you gathered up your plows, harrows and seed drills, and put them under cover, so that they will not be checked and warped by exposure to the effects of long summer sunshine? If you have not, you should do it now, for two reasons: they will last twice as long, and can be found when the season comes round for plowing again. It is well to sharpen your plows and harrows, and paint all the wood work of your tools, giving to the polished mould boards of the plows a coat of varnish you should cover the whole with. Now, if you are in the habit of doing this to preserve your plows and harrows, it is reasonable to infer that, last year after harvest, you pursued this same course with your reapers, rakes, scythes, forks, threshing machines and other implements used in the harvest; if so, the repairs they needed were made at a time when the blacksmith and wheelwright were not drove with work, and you had just harvested the money to lay down for the cost, instead of running into debt, to be paid

out of the uncertain next harvest, and you are ready at any moment to commence operations. You being a farmer of forecast, as evidenced by having everything in the condition described, will harness up the teams, and hitch on to one of T. Ogg Shaw's combined reapers and mowers some days before ready to reap grain, and mow or reap a few swaths to test the working condition of the machine. This may save you the vexation of delay, caused by going to the shop for repairs or alterations, at a time when a great many other farmers are also waiting for their turn; you, during this time, having also an extra gang of men to feed and pay, although idle for days, in consequence of some trifling defect in the reaper.

We said you would hitch on to one of T. Ogg Shaw's combined reapers and mowers, again taking it for granted that your sagacity, so far shown, has taught you that home consumption is your surest and most profitable market; and as his is purely a California establishment, building up and sustaining the artisan's household altar at your very door, you would give home manufacture the preference—quality of implements being equal. We have no inclination to describe what your neighbor, Mr. Slack, has been doing; we don't like to look at the mustard which he neglected to pull, now standing like a forest among his wheat, affording roosting place for flocks of blackbirds, on the alert to share the harvest; we have no fancy to witness the crash which takes place as he starts the reaper, rusty and weather-worn, which soon comes in contact with a plow or harrow left in the field where the headland was finished, but now buried from sight by the thick grain. We somehow distrust the soundness of the wood of the wheels of the threshing machine, which stood out in the field since last harvest, the lower parts buried in the ground all winter long. The creaking and snapping of the belts, wet by the winter rains, and suddenly dried a multitude of times, until they resemble strips of glue, make not the music we like. The screens to separate wheat from chaff, corroded with rust, perform foul service to the pearly grain. We don't like to follow him with the reaper or thresher to the repairing shop on the first or second day of operations, because we are aware that he has hired his men on the express conditions that they are to lose their time when waiting for repairs; because he well knows, by former experience, that there will be much loss of time in consequence of breakages, his tools having been exposed to the weather since last harvest. We don't like to go with him to the village shop or the one nearer, located at the cross roads, because there will be several farmer Slacks waiting like himself for repairs; and as there is sure to be a grog shop at the cross roads, the farmer Slacks and their men will doubtless be found in these dens of whisky drinking and card-playing. We have a natural repugnance to such places and practices; they have been the bane of California life. Many a young hope has been darkened forever in their poisoned atmosphere. Mature manhood and wrinkled age alike are victims; and if the agony and desolation which has been borne from California to the affections and homes of other lands could speak aloud, it would blend into one great wail—a curse upon all who give countenance to these detestable twin vices. Farmer Slack is a whole-souled, liberal fellow; he treats the crowd; the barkeeper will mark it down, because farmer Slack is flush after harvest. It is

observable though, that there are no church spires nor school houses in a neighborhood where the population are mostly of the name of Slack. To build school houses and churches it takes ready money, the absence of which is chronic with farmer Slack.

We will turn our back upon the Slack tribe, and finish our talk with Mr. Wiseman. We left him trying T. Ogg Shaw's combined mower and reaper; some of the cogs on a wheel are worn out or broken. Shaw has duplicates, or is casting every day in his foundry; so Wiseman does not have to wait on the pattern maker, but is ready the next morning to go to work. Wiseman has a vegetable garden and orchard; he has been building fences, hedges, ditches and making heaps of compost, besides plowing under a green crop for summer fallow, on a portion of his land, and by these operations is enabled to keep in regular employment, the year round, nearly hands enough to do his harvesting. He has no difficulty in getting extra good hands, as those who had previously worked for him are anxious to get back. Wiseman is a strict disciplinarian; he enforces a punctuality in everything; his personal supervision extends to the minutest details, yet he is not exacting. He never exhibits passion; his commands are given in a firm, but respectful manner. He studies to dignify and ameliorate labor, and has learned that if you would be respected by the laborer you must respect him. Mr. Wiseman is happily situated in all his domestic relations. Mrs. Wiseman seconds him in all of his undertakings; she reigns supreme in the household; comfort is everywhere observed to the exclusion of ornament; nothing is wasted, and it is wonderful how far she makes things go; yet abundance prevails, and her table has a profusion of luxuries which are home-made. She has a kind word for all; her heart is largely human. What wonder, then, that Wiseman prospers? Wiseman has examined his fields, and made note of those parts which will ripen first, and continue in rotation, and has calculated how long it will take to reap the grain. Wagons follow the reaper, taking the grain from the gravel and hauling it to the *corral*, where it is made into great symmetrical stacks. Wiseman does not commence threshing until he has finished reaping and stacking. He has a notion that the grain loses less when stacked immediately after being reaped, as it does not then shell, and the straw, being somewhat moist, he argues that it goes through a slight sweating process in the stack, which makes the straw tender, so as to become an article of food for his teams and stock. It also facilitates the shelling of the grain when he comes to thresh. Having finished reaping, he sets one hand to work with a horse rake to glean the scattering grain from the fields; while the balance, who had been reaping and stacking, now commence threshing. A point of his operations is now reached, with which Wiseman has a long time been somewhat dissatisfied. He would now like to be plowing under his stubble, as he has estimated the loss of fertility to his land, caused by the robbery of atomic matters, in the particles of grain scattered on the surface, which are picked up by crows, wild geese, black birds and insects. But his teams are required for the thresher; steam power is too dangerous and too costly, and he is not sufficiently acquainted with mechanism to construct a wind mill which shall have adaptation to the great motor which now is



idle, except to purify the respiration of his lungs. The straw is again stacked alongside of the *corral* as fast as it leaves the thrasher. Now, Wiseman has learned that the straw, after being threshed, is difficult to handle, and as he hauled the grain directly to the *corral* from the reaper, he makes a saving of loading it on to the wagons once superfluously; and as soon as threshing is finished, the teams are available to haul the grain to the storehouse at the landing, where it can be shipped any time to market, which would be difficult if he stored on his premises, as the roads might be muddy, or his time engaged in putting in his succeeding crop. Thus, the grain has been hauled to market during the time that otherwise would have been occupied in stacking the straw, had it been threshed in different parts of the field, instead of being taken to the *corral* on first moving.

Farmer Wiseman, having stacked his straw and covered it so as to shed the rain, sits down under the fruit-swelling foliage of his vine and fig tree with his wife, to talk over the results of their year's industry. This has been pay-day, and all of their hands have been joining them in the dispatch of ripe, luscious fruits, and dainties prepared by the hand of Mrs. Wiseman herself. They have all left now; those sturdy, hard-palmed men, each with a smile of satisfaction; and Wiseman and his better half sit down by the table in the open air, the little Wisemans have gone to bed, and the shadowy wings of gorgeous, mellow starlight are falling fast. Wiseman is musing to himself, and making calculations of the number of cattle he will be able to feed with his straw, during that part of the winter when stock is in a starving condition, owing to the scarcity of natural forage. He has satisfied himself that his straw is of sufficient value for stock-feeding to make that part of his receipts alone a compensating year's business. Not only that, but by feeding it out in the *corral*, he is making a large supply of manure to keep up the fertility of his fields. He is something of a fancy stock man, and has some pure Durhams and Devons, and realizes the fact that these cattle must, by necessity deteriorate, unless efforts are made to improve our grasses for summer pasture, and to provide a supply of food for their winter use. His musings are brought to a close by Mrs. Wiseman, who points out to him a multitude of great bonfires, away over in the neighborhood of the Slacks. The dark columns of smoke ascending upwards, set off grandly the lurid glow of the flames beneath. Wiseman looks at the sublime spectacle, with an appearance of regret on his thoughtful countenance, and says to his wife in a low tone, "It's too bad; the Slacks are burning their straw." Thus, "riches take to themselves wings."

F.

THEY are said to be experimenting on grapes with great success in northern Louisiana, by grafting the best varieties from France upon the wild grape vines which grow luxuriantly in that region, and some grapes have been produced that cannot be excelled in Europe.



### THE DAIRY.

**I** NEED not say he who has a good dairy must have good cows. And what breed of cattle will give him the best cows? I answer, much will depend upon his location and the particular disposition he intends to make of the milk obtained from them. If he sells his milk, cows that will give a large quantity without so much regard to quality—except to have it healthy and as natural as possible, for I shall only refer to the production of an honest and healthy article. If he converts his milk into butter, then those that give most butter of good quality. In both cases, the amount of food consumed, and the value of the animal for the butcher after her milking qualities have become impaired by age or high feeding, to be taken into consideration. Many prefer to buy their cows from drovers, but the most profitable dairies I know, near large cities, are those that raise their own cows from improved breeds.

Undoubtedly the Ayrshires will give more large milkers of more than average quality than any other breed that will be worth as much for the butcher after they have ceased to be profitable for the dairy. We often find very superior milkers among the Durhams or short-horns; perhaps some of the best milkers I have ever seen have been of this breed or their crosses, but they are not uniformly good, and latterly they have been bred so purely for beef that good milkers are the exceptions and not the rule. What is true of the Durhams is much so of the Devons; they, with the exception of a few herds, have been bred to develop beef-making rather than to encourage deep milking qualities, and in these herds there are hardly to be found any cows that come up to the highest standard of excellence as milkers, nor as herds can they successfully compete with the best herds of Ayrshires. Some of the best milking Durhams and Devons I ever saw gave a light colored butter, though the quantity was not small. But for the production of butter of the highest flavor and richest color, the Alderney or Jersey cow has no rival, and if the location of the dairyman is such that he can avail himself of a frequent market for print butter, there is none that will return so much profit on the outlay for herself and the food she consumes; she rarely fails to make good returns for all the extra care and feed she requires above the most hardy breeds. I know of cows of this breed that are producing over one hundred and fifty dollars worth of butter per year, and that on not the highest feeding, as breeding is the first object. The milk is usually not a large yield per day, but extending through the greater portion of the year, and so rich as to require but from six to ten quarts to make a pound of butter, and sometimes even less than the smallest quantity. Such cows as these seldom have any arrearages to foot up their worth for the butcher, need be taken into account when they fail as milkers, for so long as there is a possibility that they will perpetuate their kind they must be worth more for this than for beef. The wealthy consumers in the larger cities are always willing to pay very high prices for Alderney butter, and are rarely satisfied with any other after they have become accustomed to its superior flavor; it usually sells for at least twice the price of the firkin butter. Very few of

these cows have been imported that failed to more than pay for themselves, with the cost of their keeping and attendance, in a very few years after their importation, in milk, cream and butter, besides their returns in calves.

The Ayrshire is a large milker and a hardy cow—seldom dainty, usually eating with a good appetite what most others would reject—and while she will live on a scantier allowance than most others, she will yield rich returns for liberal feeding—and on that feeding will last longer than most other breeds, being less disposed to take on flesh when giving milk, than either Durhams, Devons or Herefords; and, although she must yield the highest rank to them for beef, she will yet be very valuable to fit for the butcher when her useful milking days are over, for none will fat more rapidly than she when dry. If there is any breed that *can* be profitable on scanty feeding and poor pasture, it is the Ayrshire. She is also most pleasing to the eye of the milking breeds, her form being round, more compact, and her color more uniformly pleasing than others. But where a rich return in butter is the chief object, and the dairyman is willing to care for and feed liberally, the Jersey is *the* cow—she is a very industrious breeder and a constant milker, and therefore needs care and nourishing food, for which she will repay. While she has not generally the fine outline and compact form of the Ayrshire, she has her finer points, as none can compare eyes with her except at a disadvantage, nor rival her deer-like head and neck. The latter importations are usually the best. The peculiar points by which her purity should be judged, are not so well agreed upon in this country as those of other breeds, but the weight is in favor of the fawn, dun, or French gray color, sometimes intermingled with white, but the latter should not predominate; the muzzle should have a rim of white or mealy hair, the nose and tongue black. In my next, I propose to consider crossing to obtain cows for the dairy.—*American Stock Journal*.



### PREMATURE IRRIGATION.

**A**S the season has arrived when a great many people consider it necessary to commence irrigating their orchards, vineyards and gardens, in order to promote, as they suppose, the growth of the vines, plants and trees, and secure the maturity of the fruit, inquiry may be made as to whether such practice is really advantageous, thus early in the season.

As a general thing, the soil of California is deep, porous, rapidly absorbing the winter rains, so that they do not flow off in streams, and prone to retain this moisture to a late period of the season. This soil, too, is rich in material to nourish vegetable life, whether taken from the substrata of the valleys and great plains, the declivities of the foot-hills, the mountain's high summit, or the dark depths of the miner's drift, hundreds of feet from the sun ray, beneath the former moulted stream of the now lava crust. Wherever this earth is thrown up and exposed to atmospheric influence, it becomes, in a short time, the nourishing bed of healthy vegetation. To this natural fertility of the soil, and the long drought of summer, may be attributed







## A SURE REMEDY FOR LICE ON ANIMALS.

**I**T is really amusing, but not very instructive, to read the ideas of different men with regard to the manner of treating lice. One will recommend one nostrum, and another something else equally inefficient.

Why do lice flourish best, and increase much more rapidly, on very poor, emaciated animals, than they will on fat animals? Because the surface of the skin and hair of fat animals is somewhat oily, while the skin and hair of very poor animals is quite free from oil. Well, what of that? Why nothing, only no lice can ever propagate their species among oily hair; and whether they have any brains or not, they will never deposit their nits among oily hair. If the nits, after they have been deposited, or stuck to the hair, should be oiled, they will never hatch; and the lice seem to know that fact, and therefore they do not find a congenial locality in the hair of an animal which perspires very much. Consequently if lice are formed on a *fat* animal, they will always be more numerous near the end of his tail than on any part of his body. Lice are very much like sheep in one respect; they like a warm and dry place.

Let a few nits be placed in a warm place for a few days, and they will hatch; but let them be *oiled*, and it will be impossible to hatch them. So with the eggs of birds and domestic fowls; give them a good coat of paint or grease, and they will never hatch.

The bees, which are a great annoyance to horses in the summer, which fasten their eggs to the hair of horses, seem to understand this principle much better than most people do, and therefore they deposit most of their eggs on the hair which will be least liable to be moistened with sweat. For this reason, we always see many more *bot eggs* on the legs, below the knees of horses, than on any other part of them. If such eggs should be greased, or moistened with sweat a few times, they will never hatch. There are several very good remedies for lice on animals; but, among them all, perhaps, *oil* is the most efficacious and harmless. None but sweet oil, or the best kind of lamp oil, or winter strained machine oil, should be used for such a purpose. If linseed oil, or some other kinds of oil be used, it is liable to dry, and the hair of the animals will all stick together in dry, hard bunches. Pour it on their backs, and on their necks and tails, and rub it in thoroughly; and if the lice take up their quarters on the dewlap, give it a good oiling, and they will soon bid adieu to such oleaginous climes. Oil should be applied when the weather is *warm*, rather than when it is very cold; because in very cold weather, lice keep very quiet, and do not deposit many eggs. Let it be kept in mind that they never deposit their eggs on oily hair.

In the spring of 1859 we were raising a lot of turkeys, which were about as large as quails, when they began to droop, and appeared very lifeless. Upon examination they were all found to be as lousy as an Egyptian. Every one of them was caught, and sweet oil was rubbed on their heads and *poured* on them, under the wings—giving them a good sopping—and in three days not a louse could be found, and the turkeys soon began to flap their wings and move about with agility.







seventy-five cents for choice butter before next February. This unreasonable fluctuation cannot be attributed to extraordinary consumption or demand ; because the amount daily consumed varies little in the year. It may be traced to the ability of supply and not demand. This, then, places the control of the whole matter entirely within the reach of the dairyman. By relying only upon the natural forage of his range, it may be said that the dairyman's cows either have a feast or famine. As, during the spring and fore part of summer, they are up to their eyes in the rich clovers and nutritious grasses of these luxurious seasons, to be succeeded by months of parched herbage, and the "winter of discontent," when the starved bovine does bravely if she survives the drenching storms, without giving to her improvident owner any of the lacteal fluids.

The season when the green herbage is in good condition for the dairy is of about the same length in California as in the northern Atlantic states—being here from February to July, and there from May to October, with this difference in our favor: that with artificial, fall irrigation, we can produce grass crops which will get sufficient strength to survive the early frosts, and by the cultivation of root crops, we may keep our dairy in a butter-producing condition at a trifling expense ; and, by having a part of the cows drop their calves in the early part of the fall, good fresh, yellow butter can be sent to market the year round. So much has been written and said about the best mode of making butter and cheese, that our space, at this time, forbids details. We shall only offer some prerequisites to a good dairy. The first is good land, which should be a rolling, hilly country, with an abundance of shade trees and plenty of clear, sweet water. Animals are averse to great plains ; they don't like the hurricanes which sweep over them with the storms of winter ; while the heat and dust of summer fills up the pores of their skin, and makes them feverish and mangy. The next thing wanted is good cows ; discard all that have a mixture of the Spanish breeds ; you may as well choose oxen. A white nose and yellow skin are the two best points for a butter-producing cow, and it is a curious fact that such will be found to have the most docile and amiable disposition, equally important considerations in the selections of cows. Short legs and large abdomen are also good points of a great milcher. If you have a large number of cows to milk and are short-handed, your cows should be divided and kept in separate inclosures, so that a given number can be driven into the yard and milked at time—each cow being distinguished by a number and milked in rotation, so that the time of milking shall not vary. When driving them up to be milked, never allow a cow to be urged faster than a walk. Loud talking or the presence of dogs should be avoided about the milk yard, as anything that attracts the attention, or is calculated to excite a cow while being milked, is apt to make her hold up her milk, so that a portion of it is left in the udder, where it creates a fever before the next milking, thereby vitiating the quality of the butter. No bull should be allowed to run with a herd of cows kept for dairy purposes ; and as soon as it is discovered that a cow is in heat, she should be removed from the herd ; and if, on calculation, the time will be right when you desire the cow to come in fresh, then she should be sent to pay her respects to "*Sig. Fuoro.*" As to the

best article of food to give dairy cows, there is a diversity of opinion, the merits of which we have not space at this time to discuss. We may, however, state our belief that the wild oat of California, with which a great part of our grazing fields is covered, is not, when it becomes the sole food of the cow, a good substance for the production of milk. We merely advance this as an opinion, formed without sufficient data to fully satisfy ourself of the fact, and should feel under great obligations if dairymen, located in different parts of the state, would give us the result of their observations, as upon the matter of forage for milking cows, will be demonstrated the practices which shall make us a great dairy-producing people. It is upon the problem of quantity and quality that a solution will be found as to how long we shall be tributary to the dairymen of the Atlantic states for the larger bulk of our supplies of butter. As stated in the beginning of this article, the glut in our markets at this time, by an overproduction of butter for present wants, establishes the conclusion that there is no difficulty in the way of quantity of superior quality. Hence, the inquiry follows, Are we not deficient in a method of packing and preserving our present surplus so that it may be distributed through those seasons when there is a short supply? As an answer to this involves an investigation into the *modus operandi* of the dairy-room, we must defer the subject until another number. F.

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#### CURLED LEAF.

MUCH has been written and said about the curl in the peach, yet the cause has not been definitely ascertained, nor any certain remedy discovered. It seems to affect some kinds more than others, among which may be enumerated seedling, as distinguished from established and defined varieties—particularly those raised from Chile seed. It has been hoped that this disease, so fatal to the young fruit in its first stages after blossoming, would not prove formidable in the clear, dry atmosphere of the Pacific slope; but such hope can hardly longer be indulged in, as the disease seems to be spreading throughout the interior, and with increased virulence. Not only has it become a source of alarm to peach and nectarine-growers, but its fungi has become contagious upon the pear, acting upon the latter with more virulence, as it not only spreads over the leaf, but even upon the fruit while in blossom, and until it may be said to have set. Its first appearance is denoted on the half expanded leaf, by a great number of infinitesimal specks of a dark, chocolate and crimson color, which rapidly expand with the leaf, until they run into large blotches. This disease of the pear is entirely different from the fire blight which appears later in the season, and its disappearance is sometimes with that of the curl of the peach. Thus far, it is confined mainly to two varieties—the Dearborn's seedling, and that other, the most hardy of all, Louis Bonne de Jersey. The writer has been practicing a series of experiments for the past few years, in the time and mode of pruning the peach so as to test the effects of the different plans, in hopes of obtaining results which would indicate a mode to prevent the curled leaf. Thus far, the results of these experiments

are, that peach trees which have been pruned in the spring, after the fruit had set, and those pruned in midsummer, while the tree was in growing condition, have suffered less from the curl. Those most subject to the fungus were heavily pruned in midwinter, when the sap was dormant. Hence, it would seem that the curl of the leaf is caused by an excess of sap from the roots, there not being a sufficiency of foliage to absorb it; in other words, the equilibrium of root and branch having been destroyed by an under amputation of the branch, the pressure of sap collapses the sap vessels of the albuminous shoots which have not been hardened, and they, like the leaves, become covered with a fungus exudation, in consequence of the air, at this early season of spring, being subject to sudden changes from cold to heat, but always running humid, so that atmospheric respiration does not aid or promote healthy functions. F.

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**THYME AS FOOD FOR BEES.**—On a recent visit to the nursery of R. W. Washburn, Esq., at Shell Mound, Alameda county, our attention was attracted to a bed of thyme, on which countless numbers of bees were at work; and, on inquiry of Mr. Patterson, the superintendent of the grounds, we were informed that he had noticed for the past two years, that the bees worked on this bed of thyme, to the exclusion of all other flowers—and the grounds of this establishment are adorned with all kinds of rare plants and flowers. We examined the gorgeous bloom of a great variety of plants in the vicinity of this bed of thyme, and can confirm the observation of Mr. Patterson, with respect to the fondness of the bee for the thyme, as against other and more pretending blossoms. We examined carefully thousands of bees as they were working on the blossoms of this bed of thyme, and became satisfied that they extracted from it nothing but honey—there being no signs of bee bread or wax in their gleanings. Thyme is an herbaceous plant, easily propagated from seed, layers, or a subdivision of roots, and on moist ground will spread so as to take entire possession. The blossom is small and the cups shallow, so that the bee has no difficulty in penetrating to the secretions of honey in its base. The honey doubtless will have a pleasant, aromatic flavor, as the plant itself has long been regarded as of great value for culinary use in seasoning food. May not our apiarists find in this plant an invaluable acquisition to their growing interest. It is easily propagated, is perennial and continues in bloom nearly the entire year, and seems to be rich in honey, a deficiency found in a large number of California flowers. What apiarian will have the first large field of thyme for bee pasture? F.

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**WHITEWASH.**—Whitewash of a superior quality, is made by mixing one bushel of lime, (slacked in hot water) one quart of salt, four of sugar, two ounces isinglass, and two ounces saltpetre. Each ingredient dissolved in hot water, and the whole mixed while hot. This whitewash will neither wash nor rub off, and will last for years.

## PEACH BRANDY.

EDITOR CULTURIST.—In view of the great abundance of pomological products that, in all parts of the state, are now rapidly advancing in growth and approaching maturity, a serious question is presented as to the actual disposition to be made of the large surplus that must invariably be produced, beyond the quantity that can possibly be consumed in a fresh and ripe state, at prices that will pay the expense of gathering and marketing. For the last three years, large and important sections of the state, devoted to fruit-growing extensively, have been more than doubly decimated of their anticipated yield of bushels of fruits by untimely frosts. The peach, particularly, has been a regular sufferer from these unwelcome visitations; and yet, with each succeeding year, the peach crop at the season of ripening has been profuse and even abundant, to that degree that barely a paying margin was left to the producer after marketing his crop.

This year the peach crop promises to be immense—altogether beyond any season that has preceded it—and to suppose that it can all find a market at paying prices, at the season of ripening, is to suppose, or hope against even a probability. What, then, is to be done with the surplus? Can our peaches be converted into spirits or brandy, or can they be dried and enter the markets in competition with the imported article at prices remunerative to the producer? These are questions that interest many at this moment, and no one more than myself. It occurs to me that the expense of drying peaches must depend much upon the prices of labor necessary in preparing the fruit for drying, and that possibly, on this account, it may be found more profitable to convert them into brandy; but how is this to be done? I do not understand the *modus operandi* of preparing the fruit juices for the distillery. Can you, Mr. Editor, enlighten your readers on this subject, and very greatly oblige,

ONE OF THEM.

DRYING PEACHES—PEACH BRANDY.—Our correspondent, ONE OF THEM, is not the only peach-grower who is this year revolving in his mind, as to how he can best dispose of his advancing peach crop. But a few days since, a large producer of this excellent fruit remarked to us, that it was not with him so much the prices that the fruit would be likely to command the present season, as the price of brandy. That we are to have an abundant crop is beyond all doubt. The matter of drying peaches to advantage, must depend wholly upon the expense of preparing them for the process. Peaches should never be dried without skinning, though very many are; and as the process makes a very large item of cost in their preparation for the drying frames, it may possibly be dispensed with, with paying results, where labor is high. There is a great difference in the relative value of different varieties of peaches for drying; and in countries where they are prepared as an article of considerable export, varieties are cultivated purposely for drying. They are those that possess the quality of a high peach flavor, combined with a dryness and toughness of the pulp—



## DOMESTIC WINES.

**F**ORMERLY, this term was applied only to such wines as were the product of other fruits than grapes, because the juices of such fruits could be produced in abundance where the grape could not be cultivated to advantage; but now that the vine can be grown and the grape produced almost as easily and surely as any other fruit, the wine from the same becomes as much a domestic wine as any we can produce. Still, there will be an immense quantity of wine annually produced from the juices of other fruits than grapes, and it is for those who desire to try their hand at the manufacture of such wines that the present hints and directions are penned.

Almost all the acid fruits, and many of the sweeter ones, contain the elements of a very good wine, but not all of them in the right proportions. The grape comes the nearest to containing all the requisites for a good wine; and yet, it is nothing uncommon that other ingredients are added to its juices in the production of some of the finer wines of commerce. The element most in demand for admixture with the juices of fruits in the production of wines, is sugar. The grape, in many of its varieties, contains large quantities of sugar; whilst many of the more sharply acid fruits contain but little. Sugar is indispensable in the production of most wines, not only to give them the requisite sweetness where a sweet wine is desired, but also furnishing material to be converted into alcohol by the process of fermentation, thereby giving to the wine the requisite body or strength. There are some fruits that contain but little sugar, but large proportions of starch and gluten, that produce spirit by fermentation, and wines from such fruits, whilst containing sufficient strength to enable them to keep any length of time, and even improved by age, may yet lack sufficient sweetness to make them a palatable wine with many.

The gooseberry has long been in use for the production of an imitation champagne wine, and so closely is it made to resemble the genuine article, good judges are often deceived. Within the last five years, the juice of the leaf-stalks of the rhubarb or pie plant has taken the place of the gooseberry to a large extent in the manufacture of champagne, as well as some of the finer quality of still wines, both light and heavy; the differences in the processes of manufacturing and the proportion of sugar used and its quality, determining, to a very great extent, the quality of wine produced. With nearly all the juices of the more acid fruits, a certain quantity of water as well as sugar, is supplied in preparing it for fermentation. The proper proportion will vary as the expressed juice is found to be more or less dense or thick. Thus, in nearly all cases where the juices of fruits other than grapes are used, the proportions should be nearly as follows: One gallon of fruit juice, to one gallon of water, and three pounds of sugar to each gallon of mixture. Very good currant wine is made by adding two gallons of water to one gallon of juice, and three pounds of sugar to each gallon of mixture. Two pounds and a half of sugar will make a very fair wine, but it will not contain as much body as when a larger quantity is used.

Rhubarb juice can be mixed with an equal quantity of water, and the addition of



three pounds of sugar to each gallon of the mixture will produce a good wine. If more than about three pounds of sugar are used, too much of it remains unchanged by the fermentation, and the wine is rendered too sweet for most palates. It will be observed that almost any of the juices of fruits, with the addition of water and sugar in the proportions of from one to two gallons of water to one of juice, and from two and a half to three and a half pounds of sugar to each gallon of the mixture, will form the basis for a variety of excellent domestic wines. Ferment in casks nearly full, with the bung laid lightly into the bunghole till the hissing of the fermentation has nearly subsided—say in from two to four weeks—then set in the bung moderately tight. In from three to six months, it will be in fair condition for use. Of course an infinite variety of tastes and conditions can be given to such wines, depending on the quality and kinds of fruit used, and the manner in which the fermenting process is conducted. We shall say more upon this subject in a future number.

W.

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### ART, SCIENCE AND INVENTIONS.

**ARCHITECTURAL IRON FOUNDRY.**—We have recently visited the extensive Iron Works of James L. Jackson & Brother, in Twenty-Eighth street, near Second Avenue. It is a truly magnificent establishment to be built by private, individual enterprise. The buildings are not quite completed, but when in working order, they will employ two hundred and fifty men and a capital of over \$200,000. They cover twenty-six lots of ground, and comprise all the requisite accommodations for carrying on architectural iron works, including both domestic and naval architecture, and both cast and wrought iron work. For the heavy castings there is one foundry, and for the light castings, which require different treatment, there is another.

The heavy foundry lies along Twenty-Ninth street, and is one hundred and sixty feet long by fifty feet wide. There these heavy castings are made which astonish the uninitiated. Several tons of melted iron pours along in a fiery torrent, and sinking into the mold, seeths and fumes, whilst the whole building is illuminated with a lurid glow, giving the operatives a most unhealthy appearance. From the mold there is taken forth an entire shop-front, or perhaps a section of cast iron sidewalk, with its gutter and curb complete, or a column, plane or fluted, cylindrical, clustered, or spiral. In short, in this foundry everything that is carved in stone for external decoration on the grand scale, is produced in a purity of style, a justness of proportion, and an elegance of finish, that delights the eye of an artist; while the cost—one-third that of stone—is sure to meet with the approval of the economist. The extent to which iron is now employed in architecture, is not generally known. Formerly, truss-beams and girders were made of wood, and were finished with stucco on the surface; now they are made in this foundry of cast iron, with wrought iron tension rods, and they are finished, ornamented and all, in their own material—except the painting. These are of incomparably greater strength than the wooden ones, and are not liable to be destroyed by fire like wood. Shutters and doors are always made

of iron, and the doors are finished in the richest style of panneling and carving, at a small advance upon the cost of the material. The shutters and doors are fire and burglar proof, in addition to being ornamental. In this same heavy foundry lintels and sills of windows, of the most elegant design, are cast either completely ornamented, or with suitable provisions for receiving the ornaments, which are riveted on afterwards. Also whole entablatures, arches, chimneys and cornices are cast at one operation. Side by side with these appliances of domestic architecture, are made those important adjuncts of naval mechanism for which this firm is noted. Windlasses, double-acting and power, have their heavy castings made here before they are put together in the machine shop. Capstans and mooring bitts are here made of iron, which are lighter, stronger and better, than any other kind. In this foundry, in short, all the heavy castings used in ship machinery are made, in addition to those required in building.

The light foundry is one hundred and fifty-six feet long by ninety wide, and is devoted to the finest species of iron founding. Here the utmost skill of the workman is required; for, though the quality of the iron to be run is an important consideration, it is not near so much so as the care with which it is employed. The sand must be passed between rollers to crush all lumps; it must then be sifted to insure that it is uniformly fine, and must in molding be handled with great care. The richly or delicately carved patterns are first made in wood; from this a sand mold is obtained in which a soft metal original is obtained. This is next chased up and another sand mold is got from which an iron casting is in turn obtained. If this, on cooling, does not warp out of shape, it is preserved as a permanent pattern. It is seldom, however, that a first or second iron casting is found to cool without warping, and consequently the soft metal pattern must be so bent as to give the opposite direction to that in which the iron is liable to warp in cooling. After six or eight trials, an iron pattern is generally obtained correct for future use; then an unlimited number of copies can be obtained. By this means, those beautiful forms of cast iron railings are produced, which we see on verandahs, stairs in court yards, cemeteries, etc. In this light foundry, all detached architectural ornaments are cast, such as capitals of columns, trusses, spandrels, etc., together with all kinds of cast iron gate work. We here saw some exquisite designs brought out for summer screens, they being of the most delicate and chaste kind, and the material simple cast iron. The play of the foliage was of the softest and most graceful style of modeling, and the lines were all distinctly marked and well distinguished. It was surprising to see such fine work produced in so coarse a material.

The patterns for the foundry are produced in the pattern shop—another large room. There a design is drawn on the wood for the pattern, and the carver, or pattern-maker cuts it into its finished form. There, also, the soft metal originals are bent, etc. The production of originals is a slow and expensive operation. The patterns accumulate rapidly, and require a large six-story building for their storage; and in that, patterns which have cost a princely fortune are now stored away like books in a library, being classified and numbered with such system that any can be obtained



**LA MOTHE'S IRON CAR FOR RAILROADS.**—A splendid car, made upon the La Mothe patent, has lately been put on the Boston and Worcester railroad. It is intended to seat sixty passengers, and is 46.5 feet long. It contains 6,200 feet of band iron, and 9,200 rivets. The bands are two inches wide and one-seventh of an inch thick, except under the floor and platform, where it is from four to six inches wide. In point of strength, durability, perfection of workmanship and beauty of finish, we believe this to be the finest car ever built; and that it is destined to introduce a new and most important service of economy and safety upon our railroads.—*Railway Times*.

We are glad to find this valuable invention coming into use, and hope soon to find it universally adopted. There is, in the use of wooden cars, a decided waste of power, for each car weighs, on an average, two tons more than a similar car on this plan. Even the small two horse cars for city railroads, when made of wood, are one ton heavier than similar ones made on La Mothe's patent; while the largest size passenger cars are from four to five tons heavier.

The drawing of this useless weight along the track not only consumes power, but also tends to destroy the permanent way; while the heavy cars labor with their own unwieldiness and wear themselves out, requiring constant repairs. On the other hand, the La Mothe cars, being light, strong, of the toughest material, and constructed on the most correct principles, last longer and do not destroy the road so rapidly as others. Besides, if an accident should occur, the La Mothe cars will not splinter to pieces, nor can the body separate from the platform. There is not therefore, near so great a risk to life and property by their use, as by that of wooden ones. An iron car cannot take fire, so that the appalling fate, to those imprisoned among a piled up train, of being burned alive, is impossible with them. If we carefully consider the present state of railroads and their history, we must be prepared to indorse the following conclusions:

That increased safety in railroad traveling is loudly demanded by humanity, apart from all pecuniary considerations; that to extricate the railroad interest from its present unsatisfactory position, a great reduction in the working expenses of the road is absolutely necessary; that a large portion of these expenses, arising from the incubus of superfluous non-paying weight, the lessening of this burden is an object of primary importance; that increased safety and diminished expenses will promote both passenger and freight traffic; that the La Mothe iron car, by its strength, durability, elasticity, lightness, etc., supplies the means of attaining these ends more feasibly than any project relating to railroad reform which has been brought forward; that railroad companies and the general public have thus a common interest in the adoption of these cars; that the iron-masters of the country are interested in favoring them, for the sake of promoting the demand for iron; that car-builders can readily adapt their works to the new manufacture, and will find it to their interest to do so rather than have the business taken up by other parties.—*Practical Mechanic*.



these lateral shoots to grow until winter pruning takes place, as we believe they materially aid the development of the large, dormant buds just upon their base, which become the fruit spurs of the next season.

We only recommend summer pruning for the vines on situations rich and moist, which are apt to produce an excessive growth of long-jointed canes, which, in their far-reaching propensities, exhaust the strength of the plant, leaving the fruit-bearing portions feeble and inactive. Vines thus situated, we should give thorough and frequent summer pinching, and leave the winter pinching until they begin to bleed in the spring, training them high, with an amplitude of top, so as to obtain a greater subdivision of arteries to distribute the excessive supply of sap, incident to moist, rich lands. The reverse method applies to dry, poor localities. F.

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### SELECTED ITEMS.

**DEEP OR SHALLOW VESSELS FOR MILK.**—Many suppose that the quantity of butter obtained from milk depends greatly upon the treatment before churning, particularly upon the kind of vessels it is kept in. Thus, some prefer deep pans, and some will use none but shallow; some add saleratus to the milk to keep it sweet longer to give the cream more time to rise. Experience has convinced me that the amount of butter depends on the quality of the milk, rather than on its management. All the butter contained in the milk can be obtained, and no more. I remember fifty years ago that my father, who had thirty or more cows, tried several experiments to ascertain this point. He first procured large, flat “keelers,”—wooden tubs about four inches deep—but the labor required to keep them sweet was so great, that a number of twelve-quart tin pans were also used. There was no difference in the amount of butter obtained from each. After this he was persuaded to have smooth, oak tubs made, each holding about four gallons, having been told that the milk would remain sweet much longer in them and the cream would be increased, but there was no improvement in the quality. I have for years used twelve-quart tin pails for convenience in handling, and find by keeping the temperature right, to allow a moderate cooling and a gradual rising of the cream, I get all the butter there is in the milk, which is the best any plan can do.—*American Agriculturist.*

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**HOW MUCH SEED PER ACRE?**—This question can be answered only approximately. A table giving a fixed invariable quantity would often mislead, for the reasons that quality of soil, method of cultivation and location all vary the certainty and manner of growth. Where, for many reasons, it is difficult to make seed “take,” it may require an addition of as much as twenty-five per cent., or one peck to the bushel. Again, on very rich land, where grain would tiller exuberantly, it is the practice to diminish the amount sown. With crops like roots, onions, etc., where thinning is practicable, it is advisable to sow liberally enough to allow for this. Individual judgment must be exercised. The following table, republished from volume

xiv, in answer to a call from many subscribers, shows the smaller and larger quantities usually allowed to the acre.

Barley, broadcast, 1 1-2 to 2 1-2 bushels; in drills, 3-4 to 1 1-2 bushels. Beans, 2 to 3 bushels. Beets, 3 to 5 lbs. Buckwheat, 1 to 1 1-2 bushels. Carrots, 2 to 2 1-2 lbs. Corn (Indian) 1-4 to 1 1-2 bushels; Broom corn, 3-4 to 1 1-4 bushels. Flax, for seed, 1-2 to 1 bushel; for fiber, 1 1-2 to 2 1-2 bushels. Grasses—Red Clover, 10 to 16 lbs.; White Clover, 4 to 8 lbs.; Blue grass (Kentucky) 10 to 16 lbs.; Red Top, 11 to 18 quarts; Orchard grass, 20 to 30 lbs.; Timothy, (herds grass) 12 to 18 quarts. Hemp, for seed, 3-4 to 1 bushel; for fiber, 1 to 1 3-4 bushels. Millet, 1 to 1 1-2 bushels. Mustard, 10 to 20 quarts. Oats, 2 to 4 bushels. Onions, 4 to 5 lbs. Parsneps, 3 to 6 lbs. Peas, in drills, 1 1-4 to 1 3-4 bushels; broadcast, 2 to 3 1-2 bushels, according to the size of the seed. Peanuts, in hills or drills, 1 to 2 bushels. Rye, in drills, 3-4 to 1 bushel; broadcast, 1 to 2 bushels. Turnips, 1 1-2 to 2 1-2 lbs. Wheat, in drills, 3-4 to 1 1-4 bushels; broadcast, 1 1-4 to 2 1-4 bushels.—*Ib.*

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DEATH ON LICE. It is not always poor cattle that become inhabited with these parasites. Fat cattle, owing to foul stalls or some other cause, are occasionally caught with the pests. Some apply *Unguentum*, or Mercurial ointment, which, to be sure, is death on lice, but also, not unfrequently, death on cattle. It is an active poison when taken into the stomach of cattle, as it is sure to be, if put within reach of their tongues. It should never be used. Others resort to tobacco—a safe remedy, but still oftentimes injurious to the animal. The only effectual remedy, that is at the same time safe, which we have ever tried is oil, or grease. These parasites lay their nits upon the hair, and it is only when the hair is dry that they can make the eggs adhere. If the hair be kept well lubricated for a few days with sweet oil, or any kind of grease that will not become sticky, the insect will decamp for dryer quarters. They attempt to climb the greased poles and give up in despair. Armed with an oil bottle you may effectually rout the enemy, without risking the health of your cattle.—*Ib.*

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SULPHUR FOR SHEEP TICKS.—Wm. P. Chase, writes to the *Agriculturist*: "In the January number, page 27, I notice a doubt as to the efficacy of sulphur to expel ticks from sheep. I have no doubt; I know it will do the thing much more efficaciously, and with much less injury to the sheep, than the nauseous mode I have practiced of dipping them in a decoction of tobacco, cicuta, etc. Since 1841 I have used no other preventive to keep ticks from sheep, or lice from cattle. My mode of feeding is to have boxes about one by one and a half feet square, with sides about three inches high; mix as much flowers of sulphur with salt as can be made to stick to it, and put in the boxes for sheep or cattle. Feed it any time, but particularly in warm weather. Since 1844 I have seldom found a half a dozed ticks to the hundred sheep at shearing time, and some seasons none. I think feeding sulphur a great help in

keeping clear of the foot-rot. My sheep have neither ticks nor foot-rot, although there is much of it near and round me.—*Ib.*

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**PLANTING SHRUBBERY.**—Too little attention, it seems to us, is given to this feature of ornamental planting. Our rural improvers generally persist in setting out coarse timber trees, in rows like an orchard, all over their grounds, and finishing off their work by putting a lilac or a few rose bushes around the door-way. Well, this is better than nothing; but an improvement can be made on this, as the following hints may show:

Let the forest trees—except on large places—be few in number, and confined mostly to the boundaries of one's premises. The trees near the house should be of a smaller size, and such as have smooth trunks and branches. A few shrubs may be set near the dwelling. If the premises are small, like most village lots, single specimens of large shrubs may be set on the lawn and trained up as miniature trees. This will give the place an appearance of larger extent than though it had been set with forest trees. Shrubs may also be planted in groupes and masses, arranging them according to their respective heights. They may also be used as screens to hide disagreeable objects, or to conceal one part of the grounds from the other. They appear very well, also, when used to encircle a flower garden; the central beds being occupied with plants, and the boundaries set with shrubs—the lowest in front and the highest in the rear.

As belts to conceal from the house the outer fences of one's grounds, they are also useful. The pleasure walks may be led around in front of these belts, and so afford a pleasant view of them all through the season. If they are set here, instead of being crowded in front of the house, the lawn appears larger, and every way better. A good assortment of shrubs will afford one a variety of flowers nearly all the summer, and that with far less trouble than any other class of plants. We will here mention a few of the desirable sorts to plant: Azaleas, in variety; *Pyrus japonica*, Robinia, Spiræa, Deutzia, Euonymus, Hibiscus, Hydrangea, Philadelphus, Syringa, Viburnum, Weigelia, etc. A shrubbery is a permanent affair—one of the "institutions" of a country place, and should therefore be made well at the outset, and afterwards taken care of. Those well-proved and fast friends affords us, in the long run, the greatest satisfaction.—*Ib.*

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**LIQUID MANURE FOR GARDENS.**—Every man who has a sink spout has a fountain of wealth at his back door. You laugh at the idea, for you have never tried it. Make the experiment and you will laugh at your own simplicity for overlooking a stream that abounds with gold dust, as really as Pactolus. The application of liquid manure to meadows, on farms may be at some distance in the future, but for its use in gardens the time has already come. A good many laborers, mechanics and villagers are already trying it, and finding it just the thing.

If you have nothing better, sink a half hogshead a foot or two in your garden, in





the almost total absence of forest trees. What modes should be adopted to bring these lands back to their original productiveness, we shall not now attempt to discuss; our present object being to reply to the many inquiries addressed to us, asking information with regard to tule lands. The frequency and earnestness of the inquiries, with regard to the overflowed lands of the state, is an evidence that misgivings are felt in many quarters with regard to a reliance upon the uplands for grain and forage crops; and we repeat that, if asked to predict which would be the most valuable lands of California, we should hesitate in pronouncing between the foot-hills of the Sierra Nevada and the tule lands; but hazard the opinion that either will eventually surpass in value our present grain districts.

The great value which lands will attain in our hill and mountain districts, will be on account of their eligibility for vineyard and orchard sites—they being unquestionably our most reliable and good producing wine lands. We sometimes have a misgiving when we look at the great orchards and vineyards planted out in our open plains, where there never yet flourished umbrageous trees. We are inclined to the opinion that the horticulturist is more generously rewarded when his labors are directed to those localities where nature has long been planting her rude and stately forests, or on river margins, overflowed by the torrent which brings the liquid unction from many a moldering leaf.

The main body of tule lands in the state, lie in the valleys of the Sacramento and San Joaquin rivers, reaching north and south a distance of hundreds of miles, varying in breadth and amounting to millions of acres. These lands are as variable in the character of their soil, as widely differing in composition. In some places they are of a sticky clay consistence, interspersed with streaks of alkali; while over the predominant portion, it is a loose, black, vegetable mold, very light, friable, retentive of moisture, easily cultivated, and remarkably productive. As the title to these lands lies in the state, liberal, intelligent legislation is needed to place them in a position so that they can be taken up and improved by our people, free of all doubt as to the tenure under which they are held. At present the law is vague, and an attempt to follow it is liable to create inextricable confusion.

Now that the state is about to take the management of the prison labor into her own control, it occurs to us that a considerable portion of that labor could be devoted to the reclamation of these state lands advantageously. There are vast bodies of these lands near the mouths of the Sacramento and San Joaquin rivers, which would require but a slight embankment to keep from being overflowed; and it would be a perfectly practical matter to move ships' hulks in the rivers alongside of these lands, so that those prisoners having the shortest terms to serve, could be kept in them nights, and employed during the day at ditching. We are confident that if these lands were surrounded in this way with a thorough embankment, and then surveyed into sections and sold, that they would command quick sales, and at such prices as would defray the cost of keeping the prisoners engaged in the labor, and produce a surplus which would make, in time, a magnificent school fund, thus relieving us of the cost of maintaining the prisoners where they are, in comparative idleness, and thereby



## TRANSFERRING BEES.

**A**S there are many who will this spring desire to try the Langstroth hive, we give all necessary directions for taking a swarm out of the common box, or any other hive, and putting it into this. The change is a perfectly safe one, both for the bees and the owner, providing the directions here given are strictly followed.

The first important step is to *get ready*. Prepare a roll of old cotton cloth, of any kind, as large as your wrist and a foot or more long, winding it with twine, or a small wire, from end to end. Obtain a large table or wide board on which to lay the combs as they are cut out of the hive, and place it where you will not be annoyed by other bees; vessels to contain the honey; a long, sharp knife to cut out the combs; a large chisel or other instrument to pry the hive apart; goose-quills or a wing to brush the bees from the combs; some wrapping-twine to tie the combs into the frames, and some water to wash off the honey which will adhere to the hands.

Now, fire the cotton roll and blow a few whiffs of smoke into the entrance of the hive, until the bees are driven well up into the combs, first stopping all holes in the top of the hive. Gently lift the hive from its stand and carefully turn it upside down a short distance away. Place another hive or clean box on top of this—mouth to mouth, and wrap a sheet around to prevent the bees from coming out; then rap smartly with flat sticks on the lower hive until the bees are mostly driven into the upper box, when this may be taken off and placed on the stand, and if the queen has been driven up, the bees will mostly go there. Take the hive to your table, or near it, where you have the new hive ready. With a saw slowly sever the combs from their attachments to the sides of the hive to be pried off; cut out the combs—placing all straight, thin combs by themselves to be fitted into the frames. Let every motion be gentle, as there is danger of injuring the queen, should she not have been driven from the hive. Reject all broken, irregular and clumsy combs; cut to fit closely and crowd into the frames, and when necessary, tie in with twine. Should there be any projections on the combs after they are fitted in, they must be trimmed down to an even thickness with the upper parts of the frames. Proceed until all the good combs are used, placing the frames in the hive as they are filled, those containing young brood in the center. Put in the empty frames and divide the spaces equally between all through the hive; put on the honey-board and stop the passages into the upper box. Spread the sheet in front of the hive and shake out the bees from the box into which they were driven. With a spoon, place a few at the entrance of the hive, and they will all soon run in. When the larger portion of them have entered the hive, it may be placed on the old stand. When the bees are all in, close the entrance so that but a single bee can pass at a time to prevent robbing. After three or four days, the entrance may be enlarged.—*Michigan Farmer*.

### SUMMER PRUNING.

**A** LADY friend writes us, to inquire how gardeners manage to get bushy plants—what they call “specimens.” With all her care and attention, the plants are “spindly,” or as a gardener would term it, long-legged.

At first, we thought to reply through our usual column of inquiries; but when we considered how little is actually known of the principle, not merely in its relation to the growth of specimen plants, but further, in its connection with the successful management of fruits and trees of every description, we conclude to devote a chapter to its elucidation.

Every one knows that if a grape vine be left to itself, free to climb over a tree or any other object, it soon learns to despise its terrestrial associations. It adopts for its motto, “onwards and upwards,” and in a few years you find it claims no attachment with the earth that bore it, beyond a long and bare stem. Every vestige of vegetation is at the topmost degree of altitude—not a twig or leaf remains below to tell you even that it is a grape vine. And so it is with a geranium, fuchsia, or any other pot plant; suffered to go “straight ahead,” its stem soon becomes bereft of foliage; and it stands amongst its plump and happy looking congeners that have enjoyed the blessings of good gardening, a picture of misery and wretchedness.

Now, the usual plan is to cut down such specimens, and let them grow up again; but every one knows that, to cut in or prune a tree, only makes it strive with renewed vigor to regain what it has lost. For instance, if we cut down a leggy geranium to within two inches of the ground, it will push forth several shoots that will all become as vigorous as the one cut away, and matters are not much mended. The plant will not be bushy, but will only get several straight stems instead of one. In fact, the more you cut a tree or plant, after the wood has once become ripened—that is, after the leaves at the place of cutting off have fallen—the stronger will it grow; and hence the maxim, that winter pruning increases the vigorous upward tendency of vegetation, and considerably strengthens it.

To make a bushy specimen, then, we must weaken this upward tendency; and this is accomplished by pinching off the points of the growing shoots. And it must be further remembered that only that shoot is weakened which is so pinched off; so that to make a plant bushy—so uniformly regular that the side shoots are fully as vigorous as those at the top of the plant—the top and strong shoots only must be pinched back. The side shoots must be suffered to grow unchecked until they get ripe, when they, in turn, may be cut back a little to make them branch.

The great beauty of this theory is, that it is so easy of application by the lady with her few window flowers, or the monarch of the gardening tribe who may carry off from the exhibition battle-field the gold medals of victory for his specimen plant; and the man who has but a few strawberries to grow, finds it as much to his interest to understand its bearings, as he who forces the most successful grapes. And we may say here, that it is, in fact, one of our friend Bright's great secrets in his successful management of the pot vine. By its application he gets his canes thickest

near the base of the vine, where it is usually the slenderest; and the bunches as large and as heavy when hanging but just above the soil, as those which are borne on the top of the cane, five feet from the surface of the pot.

By this theory, also, it is rendered unnecessary to have a dozen vines in one spot, so that some may be retained to fill the lower part of a trellis, and some the upper, as the branches can be so equalized as to be of equal strength at the ground and twenty feet above; and so, also, by it the dwarf pear can be made the beautiful objects Barry is so famed for producing. But there is yet another point wherein the theory becomes of great service to the practical gardener, which is the influence that pinching off the young growth has on inducing a flowering or fruiting condition.

Plants have two objects of growth: the nourishment of the individual plant, and the reproduction of its species; and in this respect they are identical with the animal creation. Flowering and fruiting is, of course, the beginning of the process of reproducing the kind in the seed, and this never commences until rapid growth has ceased. Weakening this rapid growth, then, hastens the fruit-bearing season; and as pinching the growing shoots has this effect, shy blooming plants are made to flower; and fruit trees that would grow too freely for years to bear well, soon come into a fruitful condition. Of course, the fruit or flowers are not so fine as they would be if no check to growth had been offered; but when it becomes a question of fruit or no fruit, we have no choice.

It is singular that, though this principle has been long known, it is so ill understood in practice. There are yet to be found very many excellent gardeners who will argue that it is injurious, under any circumstances, to mow off the leaves of strawberries, and look down on those who advocate the practice as a set of old fogies, with whom they would hardly like to associate in a horticultural assemblage of the most latitudinarian character. Yet, when we find men who have carefully experimented, assert that they have found the process tend to a greater productiveness in their strawberry crop, we are bound to examine their statements in all fairness; and when we know that some strawberries are so foliaceous as to seriously interfere with their fruiting character, and we also know that by cutting off foliage while the plant is growing, we tend to increase its fruitfulness, we are necessitated to admit that, under some circumstances, and in some situations, the practice has its advantages. Altogether, it is a subject well worthy of increased attention. It is one of the main springs of the great eminence modern gardening possesses over the past, and half has not yet been made from it that it is capable of affording.—*Gardener's Monthly*.

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**SUMMER PINCHING.**—By a judicious pinching in of the terminal buds of growing trees, in itself an art that can only be acquired by practice, almost any tree or shrub, if taken in season, can be made to assume almost any form desired. The beautiful pyramidal pear trees of nearly all foreign gardens, as well as other dwarf fruit trees, broad at the base and gradually tapering to a point at top, is the result of a systematic, summer pinching in.

### DEEP PLOWING.

**F**OR the last ten years, nearly every one of our Atlantic agricultural journals has strenuously advocated the practice of deep plowing as essential to successful farming with undiminished fertility of soil. If there is not quite a difference of opinion among practical agriculturists, in relation to the advantages of deep plowing over the skimming system, why the necessity of continually bringing the subject to their attention? The fact is, with all the arguments that have been brought to bear, corroborative of the advantages of deep plowing, the masses of the farmers of every state in the Union plow shallow. Is this because they lack intelligence, keeping always behind the improvements of the age? or is it because they really believe there is more talk about, than real benefit derivable from deep plowing? If we were to scan carefully the reasons that continue so many of our farmers unchangeably wed to the practice of shallow tillage, we should find that there are other motives governing their practice, besides just those of improvement or impoverishment of the soil.

The mere difference in the power required between plowing four inches deep and eight inches, is of itself an item that, in many cases, would determine the depth of the furrow, irrespective of any consequences that might result to the soil. Instead of requiring just double the power to plow eight inches deep that it does four, it requires—as proved by careful test—a great deal more than double power. It is this extra expenditure of power that tells heavily upon the farmer's stock, and deters many from plowing deeply that otherwise would; for it is a matter of serious moment to the culturist of the cereals, whether he is enabled, with the animal power he can control, to put in two hundred acres of wheat, or only one hundred. Where it requires two yoke of oxen to plow eight inches deep, one yoke will easily turn a furrow five inches in depth. Undoubtedly, then, it is the saving of labor that determines many in adopting the five inch system.

There is not a doubt but that shallow plowing effects a more perfect pulverization of that portion of the soil plowed, than if the plow run deeper. First, because the furrow slice is more effectually turned bottom up, and secondly, because no harrow runs to the depth of eight inches. In the one case, all the soil plowed feels the effect of the harrow; in the other case, not. It becomes a question, then, whether plowing deeper than can be completely pulverized, has any advantage over a depth of furrow that can be all brought to a proper condition for the reception of the seed and its subsequent growth. Doubtless much depends upon the kind of crop to be produced. Fruit trees and deeply rooted vegetables of every description would doubtless be benefited by deep plowing—deep, almost without limit, so that the soil and subsoil are allowed to maintain their relative positions. But with the cereals, and particularly wheat, it is proved by repeated experiments that the subsoil can be made too open and porous for its growth. Four or five inches of the surface soil perfectly pulverized, in which to start the seed, resting upon a substratum of a firmer texture, but allowing the roots easily to permeate their hair-like interstices is a better preparation upon many soils than a furrow of eight or ten inches in depth; and



particularly is this an established fact in regard to the adobe lands of California.

This is probably another reason why so many of our intelligent farmers will persist in the practice of shallow plowing for the cereals; nor can we see any particular reason why the practice should be greatly deprecated. Five inches deep, with an otherwise perfect preparation, will grow less straw, in proportion to the grain produced, than deeper plowing. Because deeper plowing than has been uniformly practiced upon our old eastern farms, with the aid of manures, are the means now resorted to for the improvement of the soil, worn out, to some extent, by constant cropping, does it follow that our new and unexhausted soils require already a greatly increased depth of furrow for the production of the cereals, when fifty, seventy or an hundred years of constant cropping has only now brought Atlantic states' lands to their present condition of unproductiveness? Is there any very good reason why our soils should become exhausted under the same system of cultivation that is elsewhere adopted?

The present fertility of our lands can be continued unimpaired, whether a system of shallow or deep plowing be adopted, only by making the proper return of plant food to the soil. Manures of some kind must be applied, even with deep plowing, to keep any soil in a state of perpetual fertility under constant cropping. It is a fallacy, then, to be harping constantly upon the one string, "deep plowing," as the only necessity existing for maintaining a perpetual fertility of California soils. W.

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 "NOTHING TO LIVE FOR."

SAY you so, young man? Shame on your manhood for uttering such a sentiment! You have been disappointed, perhaps, in the attachment of an object on which you have foolishly set your heart—some "wee bit lassie," as Burns has it, whom you would clasp in your arms, were it not for fear of "mussing the dry goods up," has led you a willing captive to the charms of her beauty, and because she wearied of too easy conquest, and broke the chain that bound her to you that she might go forth, like Alexander, to subdue other kingdoms, you set tamely down and bemoan your hard fate as if you were the greatest martyr since Nero's time! "Nothing to live for!" I blush for your willful blindness. Arise and use the eyes that God has given for some useful purpose, and you will see misery enough in the world—real, genuine misery—to make you ashamed of the selfish Byronic sentiment which now unmans you. "Rouse to some work of high and holy love;" take your handkerchief down from your eyes, and use it to wipe away the tears of those who have some cause to be unhappy, and you will be surprised to find that your heart is still worth two or three broken ones. "Nothing to live for!" why, man, has all generous feeling left you, that you can look unmoved on the thousands of suffering ones needing your help, and go on your own lonely way, murmuring fretfully about the "desert sands," while you systematically avoid every oasis to which you might guide the bleeding feet of many a wayworn traveler?









*all* purposes that we especially value them, we will entertain you for a moment with an extract from a recent publication, most valuable to the farmer—Copeland's "Country Life." He considers the different breeds carefully, and at length; coming last to the Devons. "These," he says, "are small cattle. The males are noted for their docility and enormous working powers, as well as for a decided aptitude to fatten, and for the superior quality of their beef. They do not ripen, or become fit to kill at so early an age as the Durhams; but they can be worked till four or five years old, and then put up to fatten. They *need work* to develop them, and if kept idle, will be invariably stunted in their growth; whilst the Durhams, or short-horns, are *impaired* for beef if worked.

"The milk of the Devon is very rich—instances being given where four quarts have made a pound of butter, and six quarts being sufficient to do this any time. It is very rich, too, after being skimmed; no length of standing will free it from all its cream, and the skim milk of the Devon is equal in richness to the new milk of other breeds. The quantity is reputed to be small, and this is generally set down against them; but there is a difference in the quantities given by different stocks of Devons: cows of some stocks have given, in America, three thousand, five hundred quarts in a year, and will constantly average sixteen hundred to eighteen hundred quarts. They never come in, with an immense bag, to dwindle down to nothing soon, but are constant and steady milkers till within a short time of calving; and two cows are mentioned in Colman's European Agriculture, of the North Devon breed—one of which gave nineteen and a half pounds of butter in a week, and more than three hundred and eighty pounds in a year; the other produced more than twenty pounds in a week. They are very hardy, both males and females, thriving on pastures where a Durham would starve; and the cows have not the tendency to milk diseases, so characteristic of the Alderney."

I have myself studied carefully to know what breed is best adapted to this country, and am satisfied that, with the grazing and herding system prevailing here, and the long, dry season, when cattle fitted for mountain ranging improve so wonderfully, there is no breed that compares with the Devon for all the purposes for which cattle are produced.

As a pure breed, they are the "*rubies*" of the race, and he who obtains them will show "*wisdom*." As an element in an improved stock of grade cattle, they possess more strength of blood, and force to infuse into their progeny those qualities for which they are so distinguished. Let every one, then, who looks to practical results, and desires to make the business of stock-raising profitable, keep up the breed in its purity, preserving on his place a few thorough-bred animals; then by management, breeding from common stock to half and three-fourths, seven-eighths, and so on, until in a few years, by means of a comparatively small outlay now, he may have a herd as numerous as Abraham's, which will all be as good as full bloods, unless for breeding, and for that he will have his thorough breds, which will have paid for themselves many times over, in the increase which will have been disposed of to aid others in pursuing the same course, by which they may arrive at the same happy results.





ital of the state. We wish it distinctly understood that we hold no man responsible beyond the time for which he subscribed. As a special favor, however, we desire that our former patrons continue one and all with us; but if they will not, that they notify us of their intentions. It will be exceedingly gratifying and encouraging to us, if our present patrons, with as little delay as possible, forward to us by registered letter or otherwise, the amount of another year's subscription—four dollars. We are anxious to know as early as possible who are our steadfast patrons, and the friends of agricultural improvement throughout the state.

W.

### Make Home Bright and Pleasant.

More than building showy mansion—

More than dress and fine array—

More than domes or lofty steeples—

More than station, power and sway,

Make your home both neat and tasteful,

Bright and pleasant, always fair,

Where each heart shall rest contented,

Grateful for each beauty there.

More than lofty, swelling titles—

More than fashion's luring glare—

More than mammon's gilded honors—

More than thought can well compare,

See that home is made attractive,

By surroundings pure and bright,

Trees arranged with taste and order,

Flowers with all their sweet delight.

Seek to make your home most lovely,

Let it be a smiling spot,

Where in sweet contentment resting,

Care and sorrow are forgot;

Where the flowers and trees are waving,

Birds will sing their sweetest songs,

Where the purest thoughts will linger,

Confidence and love belongs.

Make your home a little Eden,

Imitate her smiling bowers,

Let a neat and simple cottage

Stand among bright trees and flowers.

There, what fragrance and what brightness,

Will each blooming rose display!

Here, a simple, vine-clad arbor

Brightens through each summer day.

There each heart will rest contented,

Seldom wishing far to roam,

Or, if roaming, still will cherish

Mem'ries of that pleasant home;

Such a home makes men the better,

Pure and lasting its control—

Home with pure and bright surroundings,

Leaves its impress on the soul.—*Exchange.*









climates, giving better crops, both in quality and quantity, than the perennial rye grass. It is one of the greatest gluttons of all grasses, and luxuriates in frequent irrigation with liquid manure, though it is said to stand the drought very well. The soils best adapted to it are rich, moist and fertile, of medium tenacity; and it is admirably adapted to the purposes of soiling, as it endures repeated cutting, rapidly sending up luxuriant crops. For rich soils near the barn, used for the growth of crops for soiling, it may be used as a profitable addition to our list of cultivated grasses." The true Italian rye grass seed can be procured of the seedsmen of this city, who advertise in the CULTURIST. W.

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**VEGETATION IN CEYLON.**—European fruits transplanted into this climate grow freely, but become evergreens, and for want of their winter repose cannot bring their produce to perfection. This difficulty has been overcome with vines, by laying their roots bare at certain seasons, and exposing them to the strongest heat of the sun. This process arrests the circulation of the sap, by which an artificial repose is created, and two crops of grapes are yielded in the year. Indigenous vegetation, scarcely susceptible of improvement by scientific culture, is loaded with the most exquisite fruits; cocoa-palm trees line the roads and encircle country dwellings in the southern provinces; extensive plantations of the Palmyra palm furnish the native population of the northern districts with a fourth part of their food; oranges, limes, figs, plantains and pine-apples, with the delicate mangosteen and rich rambutan, flourish in abundance, and if eaten as soon as gathered, have a refreshing coolness; the rice grounds produce two harvests in the year; the cinnamon gardens, from which the Dutch drew such large returns, have been neglected since the monopoly was thrown open, but an inferior spice, sold at a lower rate, is more largely grown; and wild forest tracts have been cleared to make room for coffee bushes, which afford a new and increasing field of industry.—*Sir E. Tennent.*

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**THE LATE RAINS.**—We speak of them as occurring on the 22d, 23d and 24th of May, and at this, our time of writing, the 25th, giving fair promise of continuance. It is not unusual that we have rain in May; but it is unusual to see it pouring down so bountifully as now. What the effect will be upon the interests of the farmer and horticulturist is not entirely certain. Uncut grass intended for hay will be generally bettered, or greatly increased in quantity; whilst its effect upon the grain crop, may not be as favorable, on account of the increased bulk of straw, and much of it, we fear, too soft and immature to stand up till the season of harvesting. Fruits will doubtless be increased in size, whilst the time of ripening, especially with the early varieties, will be somewhat prolonged. In noting the occurrence of the rain at this time, our object is more to make record of the fact, than to speculate upon its effects. W.

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**ADVERTISEMENTS.**—Our new advertisements are deserving of notice. You who would enjoy some of the *sweets* of life, can learn where good, strong, healthy swarms of bees can be obtained; and the horticulturist, where he can consign his fruits, and rely upon their being sold at the highest market prices. In fact, our advertising pages are admitted to be an interesting feature of our journal, which our readers would not like to dispense with, they being wholly an addendum to our regular forty-eight pages of reading matter monthly.

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**CANE CRUSHERS.**—We have noticed several crushers, of various patterns and sizes, in this city. We have never inquired their cost. This is all the information we can at present give you, Mr. L. L.—s. To our subscribers and patrons we intend to be ever courteous, answering their letters of inquiry promptly, whether they inclose a postage stamp for return letter or not. But to those who are not our subscribers, and address us upon matters of interest only to themselves, without inclosing a postage stamp, our answer must and will invariably be brief.

**WHAT A FALL!**—Strawberries are coming in abundantly, and from the April price of one dollar a pound, have fallen to fifteen cents a pound, at which price they are to-day—May 24th—hawked about the city. There will doubtless be an abundant crop, and their season of ripening considerably retarded by the late and present rains, and not a little increased in weight (of sand) from the same cause.

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**CALIFORNIA AGAINST THE WORLD.**—The climate of California—for we can attribute it to nothing else—works wonders with the animal organization. Mr. D. Hoag, of Mayfield, Santa Clara county, has a venerable cow of the age of thirteen months: nothing remarkable in this, only that, at that age, she is but two feet, nine inches in height, and is now suckling her own first calf, a very pretty little specimen, and healthy.

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**BOUND VOLUMES.**—Should there be any one who has paid us for volume one of the *CULTURIST*, and not yet received it, by notifying us of the fact, when and how we were paid, it shall be sent forward without great delay. Our first volume is completely exhausted; but we are buying in a few copies wherever they can be obtained, to meet the demands of those who have just claims upon us.

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**GOOSEBERRY WINE.**—S. N. inquires whether the native gooseberry will make a fair wine: we reply, it will. The berries need not be fully ripe; express the juice, add an equal quantity of water, and three pounds of sugar to each gallon of the mixture, and ferment it in casks, giving the necessary vent.

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**THE "SCIENTIFIC PRESS."**—We have received the first number of this new hebdomadal, just published by Geo. H. Winslow & Co., of San Francisco, and edited by an association of gentlemen of acknowledged philosophical and scientific acquirements. It will be mainly devoted to the culture of science, art, manufactures, chemistry and inventions. The first number presents a very neat typographical appearance, illustrated with engravings, and contains matter of interest upon the subjects of which it treats. We commend the *Scientific Press* to the favorable attention of the readers and patrons of the *CULTURIST*. Terms, four dollars per annum. In courtesy to its editors, we append their salutatory.

"Satisfied that our humble exertions will be amply rewarded, we appear to-day the advocate of a cause which this state has long required. We have abundance of material, which, if possible, we will endeavor to use to the best advantage, and point out the feasibility of its application. We shall devote our whole endeavor to the advancement and protection of our home manufactures, and aid the willing mechanic in obtaining an honest employment. Our prospectus states most particularly what we shall advocate, and we ask your perusal thereof. [Too lengthy for insertion this month.—ED. CUL.]

"Our undertaking is necessarily attended with much labor and an enormous expense. It is hoped that those interested in the welfare of our cause will lend us a helping hand.

"We desire that all persons who may be gifted with scientific knowledge, will make the *Scientific Press* their organ.

"With this short introductory "we launch our boat upon the waters.'"

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**LARGE STRAWBERRY.**—We saw at Alameda, a British Queen strawberry, raised by Dr. Haile, which measured nine and a half inches in circumference. Can any one beat it? The strawberry crop promises to be unusually large, as many new fields have been planted, and the old vines give evidence of great fruitfulness, owing to the timely and abundant rains. Of all the varieties tried, the British Queen seems to be the best for the damp, cool atmosphere of Oakland and Alameda, to which places strawberry culture is mainly confined.

## METEOROLOGICAL TABLE,

For Sacramento, California; being an abstract of Observations made during the month ending April 30th, 1860; Lat.  $38^{\circ}$ ,  $34'$ ,  $41''$ , N.; Long.  $121^{\circ}$ ,  $27'$ ,  $44''$ , W. Hight of the lower surface of the mercury, 41 feet above the sea at San Francisco. The observations are made three times a day conformably with the hours adopted by the Smithsonian Institution. The indications of the barometer are given corrected for capillary action, and reduced to the temperature of  $32^{\circ}$  Fahrenheit, but not corrected for its hight above the sea level. The rainy days are included under the head of cloudy and foggy, and are also put separately to show the number of days on which rain fell during the month. The force of the wind is estimated and registered in figures from 0 calm to 10 a hurricane.

By THOS. M. LOGAN, M. D.



## Thermometrograph.

	Deg		Deg
Highest Reading by day on the 25th .....	78.00	Mean of all Highest Readings by day. . . .	63.27
Lowest Reading by night on the 7th .....	88.00	Mean of all lowest readings by night. . . . .	47.60
Range of Temperature during month. ....	40.00	Mean daily range of Temperature during mo.	15.67

REMARKS.—In addition to the very opportune rains of March, commented on in our previous remarks, we have received a further contribution during April, swelling the aggregate of the season to 3.890 inches above the average of the preceding six seasons, and enabling us to calculate upon a most abundant grain and hay crop—providing the rains do not prove too cold or too frequent. At the present time (first May) we hear of the prosperous condition of every species of agriculture in all quarters of the state; and the orchards in the Sacramento valley are giving promise of fruitfulness that perhaps will never be surpassed. As the rainy season is not yet over, it is probable that the present excess of rain will be still further increased. Last year there fell 1.037 inches in May, and the average amount of rain for the month of May is 0.841 inches. There is but one single year (1857) of our recorded series, in which no measurable quantity fell during that month; so that we may reasonably expect that the total of the season will sum up considerably above twenty inches. It will be observed that the temperature has been below the average; white frost was seen in the city as late as the tenth instant, but has not materially injured the fruit thus far.

















